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THE OTO-MANGUEAN HYPOTHESIS AND MACRO MIXTECAN

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0. Introduction
1. Order of relationship
2. Nomenclature
3. Manguean and Chinantec
4. Trique and Mixtecan
5. Structure
6. Morpho-phonemic alternation
7. Phonology
7.1. Types of occlusives
7.2. Two k-positions
7.3. Labial and labiovelar
7.4. The labial nasal in Zapotecan
7.5. Sibilants
7.6. Development of *r
7.7. Semiconsonants
7.8. Other consonants
7.9. Vowels
8. Isoglosses and lexico-statistics
9. Lexicostatistic documentation
9.1. Amuzgo, Mixtec and Trique
9.2. The divisions of Macro Mixtecan
9.3. Macro Manguean
9.4. Popolocan, Chinantecan and Manguean

0. Three years ago, at the time of the Oaxaca Round Table of the Sociedad Mexicana de Antropología, the author (see Weitlaner, Fernández and Swadesh 1959) suggested a modification in the 'Oto-Manguean' hypothesis, based on the results of unpublished lexico-statistic studies; the emended and amended group was then called 'Oto-Huavean' and is here called 'Macro Mixtecan'. Since that time the efforts of various scholars (see References) have greatly improved our knowledge of the component languages and families, making it possible to recognize cognates with greater confidence despite the difficult phonology of the component linguistic entities. The result has been to narrow the seeming divergences, while maintaining the broad patterns of relationship and modifying them in a few details. Although we are still a long way from having full knowledge of phonology, etymology and structural development, it may be worthwhile to set forth the theory that has shaped up so far, along with some of its structural and phonologic basis and an indication of important problems that remain.

1. The author's studies, largely but not exclusively lexico-statistic and etymological (Swadesh, in press), incline him toward the hypothesis of a common origin for all the languages of America (see also Radin 1919, Greenberg 1956, Lamb 1959). If this is correct, there can be no special problem as to whether the languages in question are interrelated but only as to degrees of relationship among them. The question corresponds to that described by Lamb (op. cit. 38):

> Two languages, A and B, should not be combined in a group which excludes another language, C, unless A and B are (probably) more closely related to each other than either is to C. That is, the discovery of a relationship, even if it can be well established, is not sufficient grounds for classifying groups together. One must also have evidence that, at the level in question, the two groups are unrelated to others being excluded from the larger grouping.

Relative degrees of relationship are often so obvious as to leave no doubt; for example, English is without question closer linguistically to German than to Russian. On the other hand, there are cases in which competent scholars disagree, for instance as to whether Celtic is closer to Italic than to any

INTERNAL AND EXTERNAL RELATIONSHIPS OF MACRO-MIXTECAN

with divergences in minimum centuries within and between the groups and subgroups

other Indo-European division. To handle the instances that are not obvious, we need strong individual touchstones or methods for evaluating the sum of individual traits. No single criterion can be altogether foolproof, but some may approach it. This may be true of very uncommon linguistic traits or, even better, joined sets of features: if two languages are alike in such matters, one can be reasonably sure that they have had a special historical connection, and it can be taken as proof of common origin if one can eliminate the possibility of diffusion as the cause of the similarity.

[While this paper was in press a new approach showed Chinantec perhaps within 50 minimum centuries of Ixtlan Zapotec and Trique thus admitting it as a fourth division in Macro Mixtecan; similarly, Tlappanecan-Manguean can be grouped with Macro Mayan.]

It is helpful to study the pattern of similarities among languages in the geographic contact. Wherever two or more tongues share a similarity, an 'isogloss' is recognized. A number of different isoglosses can be studied together and the effort made to find the relative geographic location of the dialects in the period when the similarities and differences developed. Presumably it will bear some relation to the present distribution; where it differs, one infers a different geographic order in the past. However, one must remember that the diffusional spread of features could have taken place at different times; for example, the change of *ti first to ci [tsi] and later to si, which is shared by Hittite (but not its sister dialect, Luwi) and certain Greek dialects, must have taken place after the Greek aspiration of *s ceased to operate, since otherwise it would have ended up as hi, along with original *si, and after many other special changes which characterize the Greek dialects as a whole against Hittite-Luwi. The fact that diffusion can take place between already differentiated languages complicates the use of isoglosses for the genetic classification of languages, but, allowing for this development, a pattern of geographically distributed coincidences gives a strong corroboration of inferred genetic connections.

Because of the limitations of individual criteria and the difficulties of using patterned isoglosses, a good part of the determination of degrees of relationship depends on the use of quantitative tests. Sometimes this is done by rough estimate, sometimes by statistical techniques. In the simplest case, an expert comes to a judgment of affinities after studying the structures and vocabularies of the compared languages. A more careful technique consists of listing shared morphological traits or cognates between A and B and between each of these and C, as a basis of concluding from the number and strength of the agreements that A and B are or are not closer to each other than either of them to C. And finally, one may use a systematic statistical analysis, such as that of selected phonological and structural features (e.g. see Kroeber and Chrétien, 1937) or different forms of vocabulary statistics (see Swadesh 1955, Gleason, 1959). Rough estimates are entirely satisfactory in the obvious cases, but finer techniques are desirable in the difficult ones, especially when experts disagree about the details of classification. In the latter cases, the appeal to enumerations and statistics does not always lead to unanimous conclusions, because each expert may give greater or lesser weight to certain types of evidence and to given points of similarity. Nevertheless, it is worth trying because inevitably there will be an improvement in everyone's estimate of the relationship with a reduction of the number of competing theories perhaps to two or three, and these will likely be mere variants of each other rather than completely divergent conceptions.

In the case of 'Oto-Manguean' no one can find fault with the preliminary statements of relationships published without documentation (Orozco y Berra 1864, Pimentel 1866, Belmar 1905, Sapir 1927, Vivó 1941,

Weitlaner, Fernández and Swadesh 1959), nor with the publication of a sampling of evidence (Weitlaner 1941) or with systematic support for portions of the total problem (Ecker 1939, Swadesh 1947, Weitlaner and Newman 1950, Fernández 1951, 1956, Longacre 1957, Gudschinsky 1959). However, it is now evident that parts of the classification are not obvious and that scholars acquainted with at least some of the evidence have come to conclusions which are in part contradictory. The time has come to begin the weighing of degrees of relationship in order to eliminate the contradictions insofar as this may be possible. Toward this end, the present paper offers some discussion of structural features and isoglosses along with lexico-statistic evidence.

No transcendent reliability is claimed for lexico-statistics, either in general or in the special form which we have used. It is considered to be one of several possible indices of affinity, which normally coordinates well with other lines of evidence. It has the advantage of fairly easy application. While errors in filling the diagnostic lists, in analyzing the forms and in recognizing cognates may skew the results, it is in all these matters somewhat more easily managed than other methods and the results can readily be checked and corrected when better knowledge becomes available. For these reasons, the method seems to be a good one with which to begin. However, in every case in which other information is available, it must be taken into account to determine whether it corroborates or changes the results. In the event of contradictory indications in two kinds of evidence, we must not assume any one to be necessarily superior but examine each concrete instance on its merits. In stating one's conclusions in such cases, it is all the more important to cite the evidence, so that other scholars may judge data, criteria and conclusions.

Relative degrees of relationship have often in the past been expressed in terms of position on a family tree, even though it is generally recognized that languages only exceptionally differentiate by neat splitting. Bloomfield (1933 pp. 311 ff.) states the matter as it affected comparative Indo-European studies in the following terms:

> The earlier students of Indo-European did not realize that the family-tree diagram was merely a statement of their method; they accepted the uniform parent languages and their sudden and clear-cut splitting, as historical realities.
>
> In actual observation, however, no speech-community is ever quite uniform. When we describe a language, we may ignore the lack of uniformity by confining ourselves to some arbitrarily chosen type of speech and leaving the other varieties for later discussion, but in studying linguistic change we cannot do this, because all changes are sure to appear at first in the shape of variant features.
>
> At times, to be sure, history shows us a sudden cleavage, such as is assumed by the comparative method. A cleavage of this sort occurs when part of a community emigrates . . .
>
> A less common case . . . is splitting by the intrusion of a foreign invader . . .
>
> Such clear-cut splitting, however, is not usual . . .

Bloomfield's remarks might seem to imply that the use of the comparative method automatically requires a family-tree form of classification, but he himself illustrates (p. 316) the use of patterns of overlapping isoglosses for reconstructing dialect relations in the form of a network. Similar results can be obtained even better with the help of statistical measures. With either or both these techniques one obtains a conception of the original dialect community and need not operate with even the fiction of successive splits, except in those cases where the evidence points to a real geographic separation at a definite (and perhaps approximately determinable) point of prehistory. The accompanying diagram attempts to show the order of relationships among the 'Oto-Manguean' languages.

To simplify the scheme of relations in a ramified complex it is convenient to group languages according to some convenient

scale. Thus, we show in a continuous but subdivided figure the 'Oto Huave' or 'Macro Mixtecan' complex, with other more divergent groups in separate boxes. The criterion for separation in our diagram is a divergence of 51 or more 'minimum centuries'. The measure for main parts of the Macro Mixtecan constellation, divided by a solid line, is 41–50 mc.; that for secondary units, shown by broken lines, is 31–40 mc. Some of the portions of Macro Mixtecan could be further segmented with appropriate measures: for example, the scale of 21–30 mc. would divide Zapotecan into Chatino and Zapotec; Mixtecan into Cuicatec, Mixtec and Amuzgo; Pame-Matlatzincan into Pame and Matlatzinca.

Our plan of subdivision has a purely superficial resemblance to the dichotomies of the family tree but actually represents exactly the opposite. The divisions are made according to interruptions in the continuity of the linguistic network, relative to arbitrarily chosen limits. Within the subgrouping the languages have divergences from their next nearest congener less than the chosen measure. In the usual case, coordinate subgroups are not all equally related to each other but some are relatively closer and others belong in the same set only because there are intermediate terms to join them; for example, Trique belongs in the same division as Popoloc and Zapotec because it has a relatively close relation with Mixtecan and this in turn with the other two, but the divergence of Trique with respect to Zapotecan falls in the 41–50 mc. range and that of Trique-Popoloca is even more distant. Similar phenomena may characterize the members of even the smallest subdivisions. In consequence, the maximum internal divergence between extremes within any unit often exceeds the criterion of separation between units. Thus, the Macro Mixtecan complex has a maximum internal divergence of 82 mc., as between Jonaz and Trique.

The relationships given by the procedure outlined are best shown in a two-dimensional figure, like our diagram, which includes maximum internal divergence figures and the closest divergence to the next unit in 'minimum centuries' (the figures are, of course, still provisional). The same facts can be given in outline form, outwardly similar but conceptually different from conventional family-tree outlines. Thus, 'Macro Mixtecan' is constituted as follows:

1. Otopamean. Maximum internal divergence, Jonaz-Otomi, 60 mc. Closest external contact (Mazahua-Ixcatec) 49 mc.

A. Chichimeca Jonaz. Only one dialect, therefore with internal divergence of zero; closest outside contact, Jonaz-Pame, 35 mc.

B. Pame-Matlatzincan. Max. int. div., Northpame-Matlatzinca, 50 mc.; min. outside contact, Southpame-Otomi, 35 mc. (a) Pame. Max. int. div., Acapulco-Jiliapan, 20 mc. Consists of two languages, North and South Pame, with 18–20 mc. of divergence; Acapulco and Jiliapan are used as representative dialects. External, Matlatzinca-Northpame, 30 mc. (b) Matlatzinca. Max. int. div. not known.

C. Otomian. Max. int. div., SanGregorio-Mazahua, 16 mc. (a) Otomi. Max. dialect div. 9 mc. (b) Mazahua. Only one dialect.

2. Popoloca-Zapotecan. Max. int. div., Mazahua-Isthmus, 66 mc.; minimum external, Huave-Zapotec (Isthmus dialect), 41 mc.

A. Popolocan. Max. int. div., Ixcatec-Mazatec, 25 mc.; external, Ixcatec-Mixtec (of San Miguel), 39 mc. (a) Mazatec. Max. int. div., Huautla-Jalapa, 10 mc.; external, Huautla-Chocho, 24 mc. (b) Ixcatec-Popolocan. Max. int. div., Ixcatec-Popoloc, 13 mc. Consists of three languages, Ixcatec, Chocho and Popoloc.

B. Mixtecan. Max. int. div., Cuicatec-Amuzgo, 45 sm.; external, Mixtec-Zapotec (dialects of San Miguel and Ixtlán), 36 mc. (a) Cuicatec. Max. dialect div. 9 mc.; external, Cuicatec-Mixtec (dialect of Mechoacán), 25 mc. (b) Mixtec. Max. dialect

div. 15 mc.; external, Amuzgo-Mixtec (dialect of Cuilapan), 29 mc. (c) Amuzgo.

C. Trique. Int. div. unknown; external, Trique-Mixtec (dialect of Santo Tomás), 35 mc.

D. Zapotecan. Max. int. div., Chatino-Zapotec (dialect of Villalta), 24 mc. (a) Chatino. Int. div. unknown; external, Chatino-Zapotec (dialect of Ixtlán), 22 mc. (b) Zapotec. Max. int. div., dialects of Miahuatlan and Isthmus, 14 mc.

3. Huave. Int. div. unknown, but apparently fairly small.

The sources for the figures need to be given. Those for the Otopamean division were kindly furnished by Leonardo Manrique, being part of his thesis research. Those for Popolocan are from Fernández 1956 and Gudschinsky 1955. Those for Mixtecan and for Trique in relation to Mixtecan are from Arana 1957. The remainder, which include particularly the divergences between different units, were calculated by the present author; in substantiation the wordpairs counted as cognate in each case are listed at the end of this paper. It needs to be emphasized that the figures are more or less tentative, depending on the research in phonology and etymology that has been done so far. The phonological basis for the identification of cognates is given in a later section of this paper, as also some considerations of structure.

2. If the linguistic group we have outlined holds up and if it is correct to exclude Manguean, then it is obvious that the name "Oto Manguean" is not applicable. To replace it, we have used 'Oto Huavean', based on the first and last linguistic entities in the sequence proposed; and 'Macro Mixtecan', which applies the prefix 'Marco' to the central entity in the complex. Perhaps the latter is the preferable term, since it can be used even if other families are added to the group and even if the parts should be seen in another alignment.

The expression with 'Macro' has been suggested in the past by Longacre (Longacre 1957 and Longacre and Millon 1957) for a smaller part of the complex, namely Mixtec, Cuicatec, Trique and Amuzgo, based on the notion that Amuzgo is somewhat removed from the remaining three. Quite aside from the matter of exact evaluation of the relational degrees, two considerations incline us away from this usage. One is that it might be excessive terminological refinement to seek separate names for grouping at each slightly different time depth. And second, the trend in the use of 'Macro' has been for groups that are considerably greater in time depth than the one Longacre has thus designated. In fact, if one were to follow the proposals of Lamb (1959, p. 41), even the entire complex treated in this paper would not be sufficiently broad to be so designated.

Arana (1957b) analyzes the grouping of Cuicatec, Mixtec, Amuzgo and Trique in the light of lexico-statistics and identifies it as the 'tronco mixteco', that is the 'Mixtecan stock'. However, in doing so, she had not measured the closeness of Popolocan and Zapotecan to the others. We now find that Zapotecan is almost as close to Mixtecan as is Trique, and that Popolocan shows a divergence that is only slightly greater. This means that Trique-Mixtecan cannot be regarded as a unit as against the other two. Arana used 'tronco' in the sense of a complex with a maximum divergence no greater than 50 minimum centuries. By this measure, Popolocan - Mixtecan - Trique - Zapotecan whose greatest divergence goes as high as 66 mc., is not a stock but a 'micro-phylum' or a 'sub-phylum'. Taking the new facts into account and if our evaluation of relationship degrees is correct, Mixtec-Cuicatec-Amuzgo is a 'tronco' or 'stock' and an appropriate name would be 'tronco mixteco' or 'Mixtecan'. The next higher unit includes Popolocan and Zapotecan as well as Trique; we call it Popoloc-Zapotecan. A briefer term, would be desirable but we cannot use a "portmanteau" formation, like Gudschinsky's 'Popotecan', because, in the

normal usage of Mexican names, this would designate the language of Popotlán, which happens to be an ancient town of Nahua speech in Central Mexico. 'Oaxacan', based on the name of the state much of whose territory is occupied by this complex, could be used but might be confusing because of the other languages found there (Huave, Mixean, etc.) and because most of Otopamean lies outside it. For the present it may be preferable to keep the longer but clearer designation.

Outside of our 'Macro Mixtecan', we recognize a complex composed of Manguean (Chiapaneco and Mangue) and Tlappanecan (Tlappanec and Subtiaba) and with a maximum internal divergence calculated at 54 mc. This may be designated 'Macro Manguean'.

The adequacy of our terminological proposals depends in large part on the correctness of the divergence estimates on a relative scale and its approximate adequacy on an absolute scale. We continue below to consider problems related to this matter.

3. Our Macro Mixtecan excludes Manguean and Chinantec, traditional members of 'Oto-Manguean', not because there are no similarities but because they appear to be on an appreciably different divergence level. We find 60 mc. of lexico-statistic divergence between Popolocan and Chinantecan, 64 between Chinantecan and Manguean, about 80 mc. between Manguean and Zapotecan. This last, large divergence can be avoided if we include Tlappanecan in the complex (as in Weitlaner 1941), for it is relatively close to Manguean, with a minimum of 41 mc., and is less distant from Zapotecan, with divergences of 64 mc. and 66 mc. If we were to extend the measure of inclusion to 66 mc., then we would have to include also Tarasco (cf. Weitlaner 1941), with a divergence of 66 mc. from Matlatzinca; Macro Chibchan, which comes within 60 mc. of Macro Manguean; and a whole series of other groups of North, Central and South America, which fall within the broadened divergence criterion with respect to included groups. It would be impossible to give the full list with any precision at this time, but it seems fairly clear that it would go far beyond the traditional 'Oto-Manguean'.

We have added Huave to Macro Mixtecan because it shows a divergence of no more than 41 mc. with respect to Zapotecan, considerably closer than Chinantecan or Manguean to any member of the complex.

All of our lexico-statistic figures are of course tentative and subject to correction as knowledge of phonology, structure and etymology improve. It is possible that new counts, made on a firmer basis, may modify the order of linguistic relationship. In particular the strongly reduced root form of Chinantec could have obscured the existence of cognates, which may some day become recognizable in sufficient number to bring this group into Macro Mixtecan. In Manguean, the root usually remains bi-syllabic but there have evidently been simplifications of consonant groups and some confusion between affixes and stems, leading to uncertainty in the recognition of cognates. In making our present counts, we have tried to allow for these complications by flexibility in the judgment of similarities. Despite the difficulties, we believe the statistical procedure used goes beyond the possibilities of impressionistic judgment, which has played a considerable role in the classification so far.

4. Longacre gives a different relative placement of some of the languages than we. Where we group Cuicatec and Mixtec as closer to each other than either from Amuzgo and set Trique as even farther apart, Longacre considers Amuzgo as divergent and Cuicatec, Mixtec and Trique as coordinate. He says with respect to three of them (1957 p. 3): "I propose in this study to settle the question as to the linguistic affinities of Trique by demonstrating that Mixtec, Cuicatec and Trique reconstruct

as a well-defined group with no obvious sub-grouping of any two languages as opposed to the third", and he cites some lexico-statistic figures of Sarah Gudschinsky which support this position (op. cit. 8). With reference to the remaining language of the set, he goes on to say, "Certain unpublished vocabulary counts of Weitlaner compiled before the days of lexico-statistics are of interest here in that while they show fairly close clustering of Mixtec, Cuicatec, and Trique, they tend to give smaller percentages of common vocabulary for Amuzgo with these languages." He also places Zapotec at some remove from Popolocan and Mixtecan, stating (p. 153):

> Mixtec-Zapotecan affinities—in spite of the confidence with which this relationship was assumed by early Mexican linguistics—is still in the speculative stage. In establishing more distant relationships such as Mixtec-Otomian and Mixtec-Zapotecan it is doubtful whether the number of extant cognates will be sufficient to permit reconstruction in enough detail to gain a very satisfactory picture of the phonological and grammatical characteristics of the reconstructed structures. It is my hope, however, that at least in respect to Mixtec-Popolocan, this will not prove true.

With regard to the placement of Zapotecan, the structural, phonological and lexical comparisons given in the present paper, should restore confidence in the essential correctness of the belief in its affinity to Mixtecan. Even such a marked phonologic difference as the near absence of p in Mixtecan and the lack of k^w in Zapotec, loses its force when we note that Chatino, a close sister language to Zapotec, has k^w corresponding to p in the latter; and second that there are cognates confirming the equivalence of Mixtec k^w to Zapotec p.

In our evaluation of Trique, Mixtec, Cuicatec and Amuzgo, we have followed Arana (1957b) after checking her lexico-statistics with some care and considering them in the light of the figures reported by Longacre from Gudschinsky. Arana gives the following divergences[1] in minimum centuries, including lower and upper limits in cases involving various dialects:

	Trique	Mixtec	Cuicatec	Amuzgo
Trique	—	35–39	39	45
Mixtec	35–39	—	25–31	29–35
Cuicatec	39	25–31	—	45
Amuzgo	45	29–35	45	—

To understand the divergent lexico-statistic figures obtained by Gudschinsky, it is important to know that they were made when she had available "an early version of Longacre's Proto-Mixtecan" (information kindly supplied by personal letter). In view of this fact, it may also be of interest to cite the first set of figures obtained by Arana (1957a), when she had a fairly good phonology for the Mixtec dialects but understood Cuicatec less thoroughly and had not yet solved many problems connected with Trique (as known to the author, since he supervised Arana's thesis research). Figures for Mixtec relate to the San Miguel (Gudschinsky) or Santo Tomás (Arana) dialects.

	Gudschinsky	Arana I	Arana II
Mixtec-Cuicatec	41 mc.	36 mc.	26 mc.
Cuicatec-Trique	45 mc.	57 mc.	41 mc.
Trique-Mixtec	46 mc.	49 mc.	35 mc.

There has been some interesting and important discussion of the effect that knowledge of phonology has upon cognate counts in preliminary and relatively mature lexico-statistic studies (Fairbanks 1955). The above figures add something to this question. It would seem here and from other experiences of or known to the present author that similar non-cognates and non-similar cognates do not always cancel each other out. The question depends a great deal upon the complexity of the phonologic facts

[1] At the request of Prof. Arana, I have corrected two of the figures. This accounts for a slight discrepancy between the Trique-Cuicatec divergence as given here and in the diagram which appears in Swadesh 1959b.

in the particular pair of languages and to a considerable extent also on the personal equation of the person making the study. There is often rather little discrepancy between early and later lexico-statistic counts, when the phonologies involved are fairly obvious and when the researcher takes some steps to verify his first phonologic suppositions at least in part. However, with difficult problems of phonetic equivalence and structural fusion, like those encountered in Amuzgo and Trique, even a partly developed phonologic theory may not suffice.

The important question in the present case is which figures are the most reliable in the light of the best available phonological theory. It was possible to check Arana's cognate counts against the phonology not only as formulated by Arana herself but also as expressed in Longacre. By way of sample, we cite the results for Mixtec-Cuicatec, since this was the one that showed the greatest discrepancy between the two authors. It was found that 31 items counted cognate by Arana are also specifically listed as such by Longacre. Another 12 items seem to agree entirely with the phonologic rules, both as formulated by Arana and by Longacre, even though the latter does not happen to list the examples in his work. This accounts for all but four of Arana's positive judgments. These represent more difficult decisions, which seem not unreasonably made; in lexico-statistic scoring, a little flexibility is desirable because it is always possible that genuine cognates may have become obscured. At any rate, Arana's cognate count seems to be approximately right in this and in the remaining cases.

Weitlaner's lexico-statistic figures as cited by Longacre were made by a different technique than that used nowadays in glottochronology, and of course the phonological theory had not been worked out at the time. It is explained that the lists were of 103 Mixtec words, 102 Cuicatec, 96 Trique, and 53 Amuzgo. The correspondences were Mixtec-Cuicatec and Cuicatec-Mixtec 57%; Mixtec-Trique and Trique-Mixtec 55% and 59% respectively; Cuicatec-Trique and Trique-Cuicatec 48% and 51%; Mixtec-Amuzgo and Amuzgo-Mixtec 27% and 52%; Cuicatec-Amuzgo and Amuzgo-Cuicatec 21% and 42%; Trique-Amuzgo and Amuzgo-Trique 54% and 45%. The low percentages for Mixtec-Amuzgo and Cuicatec-Amuzgo are evidently due to the brevity of the Amuzgo list. The Trique-Amuzgo figure of 54% must be an error in copying, for it would imply that every one of the 53 Amuzgo words was cognate with the corresponding Trique word. The other figures must be more representative. It is seen that the percentages of Amuzgo with the remaining languages run only a little lower than these among themselves. This may be accounted for by phonetic reductions of the first syllable in Amuzgo, as posited by Arana, combined with the presence of noun prefixes, which would result in obscuring some of the cognates.

There remains the possibility that new knowledge of phonology may modify the basis of lexico-statistic scoring or that structural or phonologic evidence of a crucial character may change the judgment of relative relationship. These factors are considered at least partially in what follows.

5. For want of adequate information and comparative study, it is possible to offer only some scattered observations on structure in the 'Oto-Manguean' languages. A general impression that one obtains, is of certain structural features which are found in a majority of the languages but with notable variations, even within the same division or subdivision of the complex. There are considerable differences in the specific elements used to express specific inflexional categories. The kinds of fluctuation are perhaps not essentially different from what one encounters in Indo-European languages (e.g. differences in the noun inflection of German and English, the plural formation of Italian and Spanish, etc. and

even greater differences when one compares Germanic with Italic, Slavic or Indic) or other greatly ramified genetic groupings, but the amount of difference is perhaps greater here. To explain this, we may suppose a proto language in which there were various ways of expressing similar ideas, so that different dialects may have emphasized different ones. This state of affairs may have maintained itself in some branches by building new inflectional formations out of syntactic constructions (just as the Romance languages created a new future tense to replace the classic Latin type). Tonal differences (presumably centered about the accented syllable) may have played a role in complicating the inflections, since earlier stages may have used tone as part of the inflexion, just as many of the languages do today. The evolution of the tonal system may have caused inflexional ambiguities which then had to be bolstered by added elements, and these eventually became fused affixes.

A general characteristic of Macro Mixtecan languages is the union of substantives with the qualifying element in second positions, e.g.,[2] Ixtlan Zapotec citta-ikkia *horn from bone (of) head*. It also holds for Chinantecan, Tlapanecan, Manguean, Cuitlatec and part of the Mayan stock. In Huave, possessive prefixes attached to the second element may come between the two, e.g. nik ši-wiš *my wrist*, consisting of *neck my-hand*, but the formation is otherwise the same. The prevailing type of composition in Amerindian languages, as is true of other language areas, is with the qualifying element in first position. The opposite order is a trait characterizing a geographical area; presumably it developed in some language of southern Mexico long ago and was extended by diffusion among its neighbors. Mayan languages must have adopted the trait in a relatively recent time, since it is found in only a part of the stock. Combinations with adjective do not necessarily follow the same order; thus, Popoloc-Zapotecan says 'water hot' but in Otomian it is 'hot water'.

Person of the actor in the verb and of the possessor in the noun is expressed by suffix in Jonaz, Pamean, Popoloc-Zapotecan, Tlappanecan and Manguean. It is given by preposed elements in Otomian and Huave, and both these languages agree in showing plurality of the possessor by suffixes following the noun. Chinantecan uses the independent pronouns in postposed position. In many of the languages, the independent pronoun consists of a general pronominal stem with the normal personal endings; in Otomi, which uses prefixes in place of suffixes on the verb and noun, there is nevertheless this formation of independent pronouns, e.g. (Mezquital dialect): nu-ga or nu-gi *I*, nu-ʔ i *thou*, nu-ʔ a *he*, nu-ga-he *we*, nu-ʔ i-hi *ye*, nu-yi *they*, and also formations with ge-. As to the specific elements, it is not easy to find cognates among them. Doubtlessly, a careful study will succeed in discovering affinities which can be taken back to a common period, but the matter is far

[2] The use of phonetic symbols will for the most part be apparent to the professional reader. It should be noted, however, that we use small cap N for nasalization; ᴛ Δ for palatal dentals; j for the voiced or lenis counterpart of č; small cap T D for retroflex dentals. Glottalization is written over the consonant and aspiration after it, for typographic simplicity and without implications as to the phonemic analysis (our personal preference leans toward biconsonantic analysis for the languages in the present study). We have attempted to normalize variant practices of different authors on the several languages, at least to the extent of using a consistent orthography for each language, but have not always introduced our own conception of the proper phonemicization, since this might bring up complicated problems of relatively minor importance to the subject of the present paper. Phonetic details are not discussed except where they touch on the systematic comparison. In Ixtlan Zapotec we use f s θ x for spirants which, when not geminate, are weak and sometimes voiced, and which are usually written b z d g; in the Isthmus dialect, the non-geminate, weak obstruents are given as p t c k against customary b d j g.

from obvious, as may be seen by examining the following (the Otomi is in the Mezquital dialect, the Mixtec in Mechoacan, the Chirantec in Ojitlan):

Jonaz	Otomi	Ixcatec	Cuicatec	Mixtec
1. -x^{w}	-gi	-ñana	-′	-i
2. -k^{w}	-ʔi	-aa	-de	-u
3. —	-ʔa	-ee	-sa	-a
1 pl. -gu (incl.)	-xi	-ni	-nu	-nu

Zapotec	Trique	Chinantec	Subtiaba	Chiapanec
*-ya	-h	hn-a	-u	-ho
*-iʔwu	-ri	hn-i	-a	-ha
—	-zi	ca	-o	-o
*-nu	-ʔ		-lu	—

The complete array of forms includes, in various languages, respectful second person, inclusive and exclusive, animate, inanimate, human, animal, masculine, feminine; and it is likely that cognates will be found among elements with somewhat different functions in the different languages. It also would seem that tonal characteristics will help to demonstrate cognacy among some forms, whose brevity otherwise makes it hard to prove their common origin. Some obvious parallels in the table above are: the pronoun endings of Subtiaba and Chiapanec, confirming the relative cohesion of our Macro Manguean; those of Mixtec and Zapotec; and first person or inclusive in some of the languages. In the formation of the independent pronouns, several of the languages use an element which may be reconstructed *qa or *qha, thus (in first and second person singular) Subtiaba iku, ika, Huave šika, ika, Popoloc haʔaN, haʔa, Jonaz ikax^{w}, ixek^{w}, Acapulco Pame kauk, heuk, Matlatzinca kaki, kaći. A different element *n/l/r· is found in Chatino noʔ, nuʔwiN, Otomian *nuka, nuʔi, Ixcatec ʔinana, ʔila, Zapotecan *naʔi, *liʔwu, San Miguel Mixtec naa, roo.

Prefixes or preposed particles indicate mood and tense or aspect in Otomian, Popoloc-Zapotecan, Chinantecan, Tlappanecan and Manguean. Huave uses suffixes. Otomi is different from the other languages, in that it fuses the pronoun with the tense-modal element, giving the appearance of an auxiliary particle in prefixed position, which is then followed by the verb root; suffixes showing plurality of the subject follow the root. Because of the prevalence of the prefixed or preposed formatives, leading to the inference that it is ancient, one naturally looks for cognate forms among them in the different languages, but only a few possibilities have been found so far, including:

Popoloc t-, Subtiaba da- imperative.

Zapotec *k-, Subtiaba ga- future, Otomi (Mezquital) g- future in first and third persons.

Subtiaba ma- infinitive, Chiapaneco moconditional, Pame ma- verb and adjective prefix, Amuzgo ma- verbal prefix, Trique ma- prefix in adjectives of color.

Chiapanec, Tlappanec and Subtiaba pacausative.

Huave na- adjectival, also found in some nouns; Zapotec *na- stative of verbs and adjectives, n/m- in animal names of Miahuatlan and neighboring dialects; Chatino n- present; Subtiaba na- present, na(n) adjective or nominal singular, ni(n)- plural or extensive; Chiapaneco na(n)- adjectival, n- substantival; Mazatec ni- stative, Popolocan *na- noun prefix, *n- fossilized prefix; Mixtec *n- fossilized element found in various roots.

There is a preposed or prefixed definite article in Otomian and in Tlappanecan; in the latter it is strengthened by postposed -lu. The first elements are respectively ra and d-, which are conceivably cognate.

Trique shares with Zapotec the peculiarity of a prefix which serves to show that a noun is possessed. The actual forms may be cognate: Trique ž(i)-, Zapotec *ši-.

Popolocan, Mixtecan and Trique are

characterized by classificatory prefixes in the noun, which express such categorizations as animal, plant, fruit, male person, female person, etc. The details vary among the languages and there are also miscellaneous elements in a given language used only in a limited number of nouns or only in a single one but analogous to the classificatory elements in that they are lost in composition. Often the prefixes are related to independent nouns and possibly they have always been derived from such elements. Aside from the languages mentioned, traces of the feature may be involved in Pame, where a majority of nouns have apparently arbitrary prefix elements; and in Zapotec, where an initial *p- is found in a large proportion of names of animals and heavenly bodies, for example as f- (bilabial, usually voiced) in Ixtlán dialect finni *bird*, fella *fish*, fecci? *louse*, felia *star*, fiu? *moon*. The same initial would seem to be contained in Otomi (Mezquital) fani *deer*. In support of this analysis, we have considerable evidence for a root *niya/yina/yini *dog* or *animal*. Chatino snyi, Mixtec *?ina or *yina, Cuicatec ?yana, Trique yune, Mazatec nia, Chocho ?u-nia, Popoloc ku-niya, Ixcatec ?u-ninya *dog*, Zapotec pinni *bird*. The initial labial element in the Otomi word and in the various Zapotec forms may be cognate with Popolocan animal classifier *ku- (Popoloc ku-, Ixcatec-Chocho ?u-) and with Amuzgo ka- of the same meaning. Popoloc ku-niya and Otomi *phani may thus be cognate both as to prefix and root.

Chinantecan has the peculiarity of differentiating animate and inanimate forms of adjectives and numerals by modification mainly of the finals. Tlappanecan and Manguean may be the only families that form plurals of animate nouns, except that Otomian pluralizes the definite article used with nouns, e.g. Mezquital ra singular, ya plural.

One language which has not been included with 'Oto Manguean' in the past (except for the comparison noted in Weitlaner, 1941), nevertheless has notable structural similarities. Cuitlatec, whose vocabulary brings it fairly close to Utaztecan, uses suffixed possessive-subjectives, and places the qualifying element second in compounds. Tense-mood is shown in the verb ending, and there are suffixes for plural, adjective formation, etc., as in Utaztecan.

This brief examination of some points of structure in 'Oto-Manguean' languages, is altogether insufficient to produce a rounded reconstruction of older morphology or to provide an adequate structural basis for classifying the languages. Nevertheless, it may be enough to suggest that we are not dealing with any of those obvious cases in which the difference between closely related and distantly related units is clearly reflected in the structural facts. Aside from really close relationships (like Otomi-Mazahua, Ixcatec-Popoloc-Chocho, etc.), there are two instances in which morphological traits suggest relative approximation of families: a special affinity between Tlappanecan and Manguean supported by similar use of tense-mode prefixes and pronominal suffixes, plurality in animal nouns, and agreement in the specific forms of the pronouns; the Popolocan - Mixtecan - Trique - Zapotecan complex shown in a somewhat more diffuse fashion by common general features and a few specific elements. With reference to Longacre's hypothesis of Trique affinities to Cuicatec and Mixtec closer than those of Amuzgo, there is insufficient structural data to make the determination; up to now they all appear to have about the same characteristics and to share these with the rest of Popoloc-Zapotecan.

In Otopamean, it would appear that Otomian is the one with the most marked peculiarities, distinguishing it from Jonaz and Pame-Matlatzincan, but reminiscent of Huave and of other languages not belonging to 'Oto Manguean', such as Mayan, Mixean and Uto-Aztecan. Huave is in a few points different from the bulk of 'Oto-Manguean', which probably explains why it had

not been classified in the complex but which are not actually more impressive than the shared features. If one bears in mind that the untypical use of possessive and subjective prefixes is also found in Otomian and that the Huave adjectival prefix is identical with comparable elements in Zapotecan and Macro Manguean, it can hardly be held that structural evidence is against relating Huave to 'Oto-Manguean' or against including it in Macro Mixtecan.

While grammatical structure is highly stable, it is not immutable. Albeit slowly, it changes, particularly when a language has contact with others of different characteristics over very long periods of time. It is not impossible, then that Huave, located in a marginal position with reference to the Macro Mixtecan complex, may have been influenced by some other set of languages, such as Mixean and Mayan, sufficiently to have acquired the use of pronominal prefixes. Otomian may have acquired this characteristic at a time when it was in contact with Huave, or independently through similar association with Mayan languages.

The general conclusion to be drawn from the features examined here is that structural parallels definitely support the affinities suggested by lexico-statistics at some points, and are nowhere inconsistent with them. At the same time, they do not go counter to the inclusion of Chinantecan and Macro Manguean in a single group with Macro Mixtecan. Even more, they open the question of possible further inclusions, as perhaps of Cuitlatec, Mayan, etc.

6. Phonemic interchange is a morphologic process which is important not so much for classifying the Macro Mixtecan languages as for clarifying some questions of phonology. There are variations in the consonants of some roots parallel to the active alternations which express diminutive and augmentative in certain other Amerindian languages (see Swadesh 1956, pp. 28–30). The evidence so far is insufficient to prove that the process was still functioning in proto Macro Mixtecan, so that we may be dealing with remnants of an earlier feature.

One of the alternations, found for example in Chinookan and strongly reflected in Quechua, used glottalized stops for diminutive and aspirates for augmentative. This may be reflected in the conservation of p in a scattering of words for *small* in the Mixtec dialects, although the normal reflex of original *p is k^w. That is, while the simple labial produced *k^w, the originally glottalized one may have been preserved. The cases of p found in scattered dialects include for example Chigmecatitlan pe?eni *small, few*, equivalent to Zapotec *piše; San Rafael Mixtec has k^waci, perhaps on a formation like *k^wa-ći, with the diminutive character shown by the sufix, A *q^wa root with augmentative meaning (augmentative form *qh^wa) is found in Mixtec *k^wa?a *many*, Zapotec *kola *old, ancient, long*, Chinantec *k^waN *long*, Takelma k^wala *many*, etc. We assume here two sets of roots, one with k^w and one with p (cf. Tarasco sapi, Tzeltal-Chol bi̱kit *small*), which would have been entirely confused in most Popoloc-Zapotecan dialects except for the possible retention of the glottalized p, as mentioned. Also supporting the use of aspirates for the concept of large is its apparent presence in the roots *maqha *long, many* and *qhani/qhari *big, long*, and in others referring to large things, like *qhamu *earth*. Particularly interesting is the case of Otomi *ph-ani *deer, horse*, cognate with words for *dog* and with an initial corresponding with Popolocan *ku- or possibly *ku/ku̱-. If Ixcatec-Popoloc ?u- is derivable from a glottalized consonant, then we have represented in different contemporary languages all three grades of symbolism (glottalized for diminutive, simple for undistinguished and aspirate for augmentative). Also supporting an old interchange are cases of variation among closely related languages, as Popoloc-Mazatec kaN, but Chocho khaN *twenty*, where it is conceivable that the former may have meant *ten* or where the latter may have

originally been *forty*; note Chocho ya-kaN *forty*, with a first part related to yu *two* and with the non-aspirate in the second element. However, it will require considerable research to determine to what extent the modern occurrence of the consonant types is traceable to an old functional alternation, and to deduce whether the interchange belongs to proto Macro Mixtecan or only to an earlier period. Complicating the picture is the change of *h to glottal stop in some of the languages, so that Mixtec *ka'ni *big* appears to have a diminutive consonant but may actually go back to *qhahni with augmentative symbolism. Another complication is that the old system, as reconstructed for a very old stage of Amerindian languages, made use of blend forms, for example, the expression of *long* was evidently with a combination of augmentative and diminutive consonantism, presumably because it implies greatness in one dimension and smallness in the other.

Another kind of diminutive-augmentative alternation, provable for an old stage of Amerindian, is qualitative, often used in combination with that of glottalization and aspiration. For normal n, we find diminutive l and augmentative r; similarly for the sibilants šs ş (in certain languages voiceless lateral ɬ replaces the retroflex for the augmentative) and for dental-alveolar occlusives t c ç. However, in the postpalatals only two positions have been clearly distinguished, q and k, and it has been suggested that q is normal, k diminutive. Interchange between the consonants of each set can be shown in the Macro Mixtecan languages, sometimes in a single language, but only a little evidence has been found associating the variation with size concepts: Although original *l has been generally changed to n in Trique, Mixtecan and Otomian, one finds l in the word for small; Mezquital Otomi varies between noci and loci; Tamasola Mixtec has luci, Huitepec liʔli, San Miguel luli, San Rafael loʔo and wali, Mechoacan and Huitepec luʔlu, etc.; Cuicatec ʔliN; Trique llih. The corresponding augmentative is found in Zapotec *ro *big*. In Zapotec, three numerals seem to show consonant variants corresponding to normal, diminutive and augmentative sibilants, to wit *t-šuppa *six*, *t-con-na or *t-sonna *three* and t-ṣonnuʔ *eight*. *Three* as a small *six* is readily understandable. *Eight* can be the corresponding augmentative if taken as a large number made by adding three to five; possibly Mazatec ñahaN *nine* to ñuhuN *four* shows a similar relation, with vowel variation serving the symbolic function. Other cases of alternation may be based on an old symbolism if one assumes for example that Mazatec ni-se *bird* is diminutive of Popolocan *ṣa *animal*, but that Chocho ʔu-ṣe *bird* has been affected by the generally used form; that Mazatec sine and Ixcatec sane *yellow* represent a diminutively conceived light color as against Zapotec *ṣini *red*; etc.

Many cognate sets seem to show interchange of vowels, but we are not able to suggest what its function may have been. It is evidently not the same as the Huave alternation of back rounded vowels for augmentative and front vowels for diminutive.

In several members of Macro Mixtecan, there is a movement of accent that accompanies the formation of compounds and which leads to greater or lesser phonetic reduction in the unaccented part. Evidently this is one of the ways in which monosyllabic affixes have been formed from bisyllabic stems. The rules are different for each language. Thus, Otomi makes *phan-thʌ *wild deer* from *phani *deer* and t'ʌhʌ *mountain* (*phani by itself is nowadays understood as *horse*), with the main accent on the first element accompanied by weakening of the second syllable of the first element and the first syllable of the second. Zapotec, on the other hand, keeps the accent of the second element. Still, the nature and function of the element also enters into play, allowing for the formation of strongly re-

duced affixes alongside of compound elements which have a lesser accent but retain their phonetic shape in other respects.

The loss of vowels in weak elements may further lead to the contraction of the consonants which are thus brought into contact. This is apparently what led Longacre (1957 pp. 54 ff.) to reconstruct 'consonant alternations' for early stages of Mixtecan. For example, he speaks of an interchange of *t and *y because of correspondences like Trique žuk^{w}a *ant*, žuʔwa *flea*, žaʔwe *nit* with Mixtec ti-yoko, ti-yoʔo, ti-yaʔu. Now, Trique ž is the regular correspondence to Mixtec t, and žu- is the normal form of the animal classifier when it comes in the prefinal syllable and in new formations. In cases like those mentioned we apparently see the reduction of the prefix to ž in the antepenult and its coalescence with *y of the root. Other of Longacre's data indicate an old *n- prefix and possibly some others. Thus, it would seem that the phenomena represented are not actually alternations of phonemes but rather the fusion of prefix and root consonants.

The accent in Macro Mixtecan also led to the loss of unaccented vowels in the root in some instances, with results similar to those just mentioned. In at least one type of case, Gudschinsky set up alternating prefinal syllables in Popolocan for what may be varying treatments of secondary consonant clusters in the different languages of the family; these cases correspond to the change of preconsonantic *y to š in our discussion of phonology.

As indicated by the reduction phenomena, supported by contemporary evidence, there were local differences in the place of the accent within the root. Evidently, in Huave, Zapotec, Mixtec and Cuicatec, the accent fell on the first syllable of the root. In Chatino, Amuzgo, Trique and Popolocan, it fell on the second.

7. In general, problems of phonology are easier to get at than those of structure, and important advances have been made in various parts of Macro Mixtecan (see references). However, when one considers the unsolved questions that still remain in Indo-European after 150 years of intensive study, one realizes that phonologies cannot be perfect at the first try. This is particularly true in a complex like Macro Mixtecan because there are many positional complications in the local developments and because the fusion of morphemes often obscures the equivalences. Much of what has been posited so far will need modification in the future. The justification for setting up phonological rules to the best of our ability, does not depend on their absolute certainty, but on the fact that they provide something of approximate value for the present and at the same time give a starting point for future improvements. In what follows, we accept a good part of the theories that have previously been set up, attempting to choose properly among alternative treatments of the same phenomena where they exist, and to obtain some improvement through trying to relate all of the component stocks and families to each other. We take up mainly the less obvious phonetic correspondences.

7.1. Four types of stops are distinguished in Otomian, three of which can be easily identified as simple, glottalized and aspirated. The fourth shows up in some dialects as pre-aspirated and in others as a firm voiceless stop which resists voicing and spirantization. Since this entity does not show glottalization or aspiration, it seems reasonable to regard it as a consonant group. That is, we assume that the simple stops can cluster with following glottal stop or aspiration and with one kind of preceding element which strengthens their occlusion. This added element is h in such a dialect as San Gregorio, but is perhaps best regarded as doubling in the other dialects. It is quite possible that both gemination and h go back to a variety of preceding consonants; for convenience we use only the geminate in our Otomian reconstructions. Since the simple stop in most dialects today is generally a voiced spirant,

current orthographies show b versus p and use f for the original aspirate, but a strict phonemic analysis might perhaps better treat the sounds as in our reconstruction. Reflexes of a similar system are evident in Jonaz. Popolocan, Mixtecan, Trique and Chatino show no signs of a simple versus geminate contrast; a difference between voiced and voiceless in Trique has been shown (Longacre 1957, Arana 1957b) to correspond to original unaccented and accented position, now developed into a phonemic contrast. Zapotecan has simple and geminate stops in a few dialects, which we now believe include that of the Isthmus despite our earlier interpretation (Swadesh 1947). The majority of the contemporary local forms of Zapotec have converted the older contrast into one of weak and strong unit phonemes. In Huave, there is a contrast between voiced and voiceless stops, whose origin appears to be as follows: evidently the geminates always give rise to voiceless stops. The simple develop according to position, giving voiced in contact with preceding nasal and intervocalically in stems but voiceless in affixes and in stem initial.

There is every reason to suppose that the full set of simple, glottalized and aspirated stops represents an old feature of proto Macro Mixtecan. This follows both from its conservation in Otopamean and Popolocan and from the fact that it is found in many other Amerindian linguistic groups with correspondences that bear out its ancient character. Moreover, there may be a few scattered reflexes in Mixtecan, Zapotecan and Huave which confirm its former presence in these branches also. There are indications that an original *qh has produced h not only in Otomian, Pame-Matlatzincan and Popolocan, but also in Huave, in a few dialects of Mixtec, Amuzgo, and possibly also in stem medial position in Trique; in Zapotecan *h from medial *qh may have coincided with old glottal stop. If stem-medial *qh has indeed given h in the languages mentioned, it would seem possible that glottal stop in the same position may derive from *q̇. This last phoneme must have been rare in the proto language since it would be a blendform in the diminutive-augmentative symbolism, with augmentative back *q but diminutive glottalization. Examples of *qh are given in the next section. Instances of other glottalized and aspirated consonants are to be found among the cognates given elsewhere in this paper. However, it should be remembered that glottalization and aspiration once functioned as symbolic variations on the simple consonant, so that a single set of cognates may include reflexes of all three types, sometimes with and sometimes without a variation in meaning corresponding to the old symbolism.

There is one more kind of evidence which occasionally seems to bear indirectly on the presence of the tripartite stop system. Glottal stop and aspiration alone must have had the same symbolism. Therefore, a root which had glottalized occlusives may also show ʔ elsewhere in the form, and one with aspirates *h*. Thus, there can be cognates with glottalized or aspirate consonants in those languages which preserve reflexes of these types but with reflexes of ʔ or h somewhere in the root even in languages that no longer differentiate the oral stop types. The fact that Zapotecan merges, *h with glottal stop obscures the old symbolism, but still admits the use of this additional evidence to aid the reconstruction. It is perhaps significant that Cuicatec and different Zapotec dialects indicate a certain mobility of the glottal stop, which could shift from final to medial position or vice versa in the development of the dialect. That is, the fact that the symbolism affected the root as a whole rather than any special part of it may have allowed different dialects to place the glottal feature in different positions (after the first syllable, after the second or after both). Examples of this variability will be encountered among our cognates.

There is proof that in Zapotec some of the geminates have been produced by the linking

of prefix consonants with the initial of stems (Swadesh 1947). Some of the formations in Jonaz (de Angulo 1933) suggest a similar formation, but the evidence is more complicated and has yet to be systematically studied. Sets of forms like Otomian *cipi *fire* but *ppa *hot*, as cited below, in which pp could be from *cp, may eventually establish biconsonantal groups as the normal origin of the geminates.

The development of a single stem-medial stop to a voiced phoneme in Huave, most dialects of Zapotec and some Otomanguean dialects is illustrated in the following example:

*naka/laka/raka *hear, ear, leaf*; also compounded with *ši/si/ṣi *projection*. Huave -laag *ear*, -ngeay *hear*; Zapotec *(ti-)naka? *ear* as in Ixtlan naxa?, Villalta nag, Santa Cecilia and Comaltepec naga, Tejalapam ñaga, Isthmus tiaga, Mitla diag; Chatino lka?, Zapotec *laka? *leaf*; Cuicatec n?gawen *ear*, ngundiwen- *hear*; Mixtec yoko *ear of grain*; Trique rakih *ear* (perhaps from *n-rakih, since simple *r would give d); Mazatec of San Juan lika *ear*; Mazahua ši-rgon *ear*, Otomi *sa-kun *ear* in San Gregorio zakun, Tenango zagun, Santa Clara gun, Mezquital gu; Jiliapan šigiaun, Acapulco cikaun, Jonaz sigan *ear*. Cf. also Utaztecan *naka *ear*, Macro Siouan *nak- *ear, hear*, Atakapa naks *hear*, Chinantecan *nau/nai *hear*, etc.[3]

The preservation of voiceless stop in Huave stem initial is shown in:

*ni-pela-ni *person* (*human being*); with other terminations in the meanings of *man* (*male*) and *woman*. Huave nipilan *person*; Zapotec *(ni-)penni *person* in Mitla and Villalta ben, Miahuatlan and Loxicha men, Isthmus pinni, Zapotec *(ni-)pi?yu *man* in Ixtlan nu-feyu?, Tejalapam nu-bi?yu, Loxicha m-byi?, Miahuatlan ša?bi?, Comaltepec bene-biu (*person-male*), Chatino nu-ko?on *woman*; Mazahua bezo *man*, Mezuqital ?behñan, Santa Clara ?behñon, San Gregorio pembe *woman*.

In rare cases of initial voiced stop in Huave, we may perhaps infer the loss of a preceding vowel. In the following example, perhaps the first consonant was reinterpreted as a prefix element and eliminated both in Huave and Zapotec:

*cipa/cpa *fire, hot*. Huave biimb *fire*; Zapotec Ixtlan fella, Isthmus pele *flame*, Santa Cecilia bel-gi? *fire*; Amuzgo k^{w}ikona?, Mixtec *koko *burn*; Otomian *cipi fire in Mazahua and Tenango sibi, San Gregorio sipi, Santa Clara and Mezquital cibi, Otomian *ppa *hot* in Mazahua pa?a, Mezquital etc. pa, San Gregorio ši-hpa; Jonaz ma-pa *fire, hot*. Cf. also Tarasco čpiri, Tepehua hipi *fire*, Chiapanec pusi, Zuñi čapi, Keres čpa, Chontal pila *burn*, etc.

So far we have not found much clear evidence for the origin of Huave voiceless stops from stem-medial geminate stops (or consonant groups), an assumption we have tentatively made to account for the existence of the voiceless versus voiced contrast in this position. A possible example may be Huave pet to Zapotec *pekku? *dog*, if we may also suppose assimilation of old *kk to noun suffix -t, that is deriving Huave pet from *pekk-t. Such a suffix is a reasonable supposition in view of other nouns like šiit *rope*, neat *year*, iit *earth*, kiet *fish*, etc., even though other substantives seem to have a suffix -k or to end in the stem consonant. It is tempting to use such a comparison as Huave -nik, Muskogi *nukk^{w}i *neck*, but the languages are so far apart geographically and the details of the phonologic tie-up so little known that no conclusion can be drawn. The relation of Huave voiceless stop in second stem position to the geminate remains a reasonable but unproven hypothesis.

[3] We cite comparisons from various Amerindian linguistic groups (taken from Swadesh, in prep.) by way of clarifying the possible early form and meaning of the element under discussion. To this end, we have selected items that show close parallels and are not too complicated. Our 'etc.' at the end of a series of forms implies that a number of other equally good parallels could be cited; where it is omitted, the implication is that the items given are about all that we have.

The presence of geminate stops in Macro Mixtecan, along with their probable origin from consonant clusters, has an interesting parallel in Uto-Aztecan (Whorf 1935).

7.2. It is possible to prove the former existence of two distinct k-positions. The most direct reflex is the contrast between palatalized dentals (ꞇ Δ) and velars (k g) in Ixcatec, Chocho and some Mazatec dialects, all within the Popolocan family; the proof that the former set correspond to k-sounds in other branches of Macro Mixtecan is not abundant, but there are several instances which appear to be quite sound. Not all palatalized dentals go back to k-sounds, for, as Gudschinsky points out, there is assimilation of t to ꞇ in Ixcatec in response to palatalized phonemes in adjoining syllables; and there are instances in which roots with original *k are confused with others coming from *t, as for example an Ixcatec element ꞇhu- *egg, fruit, round object* (from *kho) whose function is carried by thu- (from *tho *stone*) in Chocho and Mazatec. Moreover, original instances have been simplified to t before front vowels in Mazatec even in those dialects which make a distinction before back vowels. In Otomian, front *k may have had a separate development to Otomi ʔy, Mazatec dy, if our identifications are correct in roots for *bone, walk, rain* (see below).

In Mixtec, there is a process of palatalization in modal formation of the verb whereby k or kʷ is replaced by š or its dialectal equivalent (including č h) before front vowels and in certain instances where there is no front vowel, but where we have to assume this or an equivalent factor in ancient times; perhaps the process is based on an old *y- prefix. Since the change does not apply equally to all verb roots, it is possible that the distinction is based on whether front or back k-sounds were involved. In Zapotec, instances of k before front vowels can usually be traced to *y before front vowels in certain dialects (in fact the majority of them). We may infer, then, that original *ki, and probably also *qi, were palatalized to *ši; in support of this assumption, we note Popoloc čiki and Zapotec ṣiši *teat*, which appear to go back to the common set of forms *šiqi/ṣiqi (or with *ṣiki for the second). If both *k and *q were palatalized in Zapotec, this gives no special trace of the presumed original contrast any more than before back vowels. Apparently in Cuicatec, also, palatalization to č before front vowels applies to all k-sounds.

Other reflexes of the twofold set of k-consonants are apparently found in the case of the original aspirate *qh, as already discussed in connection with its aspiration. This entity produces the separate phoneme x in Jonaz; frequent cases of h in Huave, Otomian and Pame-Matlatzincan; h in Amuzgo and in a few dialects of Mixtec (e.g. Teposcolula and Tamasola); perhaps h in old medial position in Trique; the correspondence of Ixcatec and Chocho h to Mazatec and Popoloc kh (with some variation in the results in consonant clusters). The correspondences within Mixtecan lead us to infer a separate phoneme, say *x, for the common period. The h derived from *qh presumably coincides with original *h. However, the latter was probably a rare phoneme, if we may judge from the relatively few cases where modern h cannot be related to the k-sound. Apparently, it occurred in demonstratives, in the numeral *one*, and as a symbolic insert for the augmentative in syllable-final position, where it alternated with ʔ for the diminutive and with zero for the neutral.

Sets of apparent cognates for all the types of k-sounds follow:

*qeni/qhel/keni *cold*. Huave -kind; Zapotec of Miahuatlan šilʔ, Coatlan kual, Viilalta zage, Comaltepec zaga; Cuicatec ʔičɛ; Ixcatec and Popoloc kiɴ, Chocho khi.

*qe/ɋe/ke *breathe, groan, growl*. Otomi kei *groan*, ge *growl*; Ixcatec and Popoloc ꞇe *breath*, Chocho ꞇe-, Mazatec hta, nta *voice*, Ixcatec činΔu, Chocho šinꞇu, Popoloc riʔntuʔ, Mazatec nthau, thu, tho *wind*.

*khe/ke/qe/qhe *blood, saliva, pus*. Otomi of Mezquital xini/xihni *saliva*, San Gregorio

khi, Tenango and Mezquital xi, Mazahua khi?i *blood*; Jonaz ukhe *blood*; Jiliapan khi, Acapulco kukhwi, Matlatzinca čihawi *blood*; Ixcatec ɾhiN, Chocho thi, Popoloc hni?, Mazatec nhiN, hni, hiN, *blood*; Ixcatec nΔa-ɾa, Chocho nda-ɾa, Popoloc nta-?-taN, Mazatec ɾa, ça, nta-te *saliva* (*nta- is *water*, with assimilatory palatalization in Ixcatec); Huave kieh *blood*. Cf. also Mayan *ƙiƙ *blood*.

*qani/koni *bone*, *stone*, *egg*, *fruit*. Huave kang *stone*; Trique ku *horn*; Ixcatec ?i-nΔa, Chocho nča-*bone*, Mazatec nɾa, nça *horn*, Chocho and Ixcatec ɾu-, Popoloc tu- *fruit*, *round*, *thing* (Mazatec tu- assimilated to old *to- *stone*); Otomi *(n)to-?yo, Mazahua ndo-dye *bone*, Otomi ?yɛ, Mazahua dyɛ?ɛ *hand*; Jonaz ka-n?i *hand* (*qqa-ni?ye); Matlatzinca ni-?ye, Acapulco ska-n?ia *hand*, Matlatzinca ka-ro *bone*.

*qe/qhe/ke-yi *walk*, *go*. Huave -hiy *walk*; Mixtec kaka, Amuzgo -haka *walk*; Ixcatec -hi, Popoloc thi, Mazatec -mheN *walk*; Otomi ?yo, Mazahua ndyodi *walk*.

*qhani/qhari/qhahni *big*, sometimes *long*; *qhali/ƙa?li *long*, sometimes *big*; *qani *all*, *many*; *qhin *far*, *late*; diminutive kini *small*. Huave na-hal *long*, kinit *afternoon*, -kiy *late*, diminutive kič *young*, kičeeč *small*; Mixtec of Tamasola and Teposcolula ha?nu, most dialects ka?nu *big*, Tamasola and Teposcolula hani, most dialects kani *long*; Cuicatec čenu *long* (*k palatalized by front vowel); Ixcatec and Popoloc hini, Chocho ni-hini *long*, Mazatec he, Ixcatec šhe, Popoloc hye, Chocho ni-he *big* (*yi-qhe), Ixcatec kaa, Chocho kyeši, Popoloc keeN *all*, Chocho kaata *many*, Popoloc-Chocho and Mazatec khiN, Ixcatec hiN *far*, Popoloc cukhi, kukhiN, Ixcatec -cuhiN *afternoon*, diminutive perhaps Mazatec ?nti *small*. Cf. also Tarasco kheri, Catawba kri *big*, Pomo *aqhol *long*, Kekchi ġeel *old*, etc.

*(ni)ta-qhe/qo-te perhaps originally something like *water-flowing* and *flowing-water*, later simply *water*; with diminutive k in Otopamian, *rain*. Otomian *(n)tehe *water*, Otomi ?ye, Mazahua dyehe *rain*; Acapulco ku-tɛ, Jonaz kuri (*ku-te). Without the *qe element in: Mazatec nanta, Chocho inda, Popoloc nda?, Ixcatec ?inda *water*; Trique nne *water*; Amuzgo nda, Mixtec *ntuca (perhaps from *nta-wca) *water*; Zapotec *nissa *water* (perhaps from *nit-sa, compounded with *cloud* and originally *rain*).

*maqha *big*, *long*; maqhini/maquni *many*; (also ma- with other terminations). Mazahua maha, (Mezquital ma, San Gregorio -mba *long*). San Gregorio -nkuN, Tenango nšuN *many*; Matlatzinca -tumha (Acapulco maba?u, Jiliapan mbu?o *long*, Jiliapan madaN *big*); (Jonaz maperh *many*, mamba?a *long*); Mazatec of Huautla nkhiN *many*; (Huave meawan *all*). Cf. also Takelma mahay, Mixean *miha *big*, Yokuts moxlo *old*, Quechua maqhu, Nezperce meχsem *mountain*, etc.

*ṣoqha/soka/šoqa *claw*, *nail*, secondarily *foot*. Zapotec *ṣoka? *claw* in Villalta ṣogi?, Comaltepec jita-ẓoga (first element *bone*), Tejalapam ṣu-yiba; Ixcatec šku-, Popoloc khu- *claw*; Otomian perhaps *šoha/shoha *claw* in Mazahua šoho, San Gregorio šɔhɔ, Santa Clara šo, Mezquital saha; Acapulco skania *hand*; Amuzgo š?e *foot*, Mixtec *ša?a *foot* with dialect forms ša?a, ča?a, sa?a; Trique ži'i (perhaps from diminutive *šiƙi), dako *foot* (*sako, perhaps from *soka). Cf. Mixean *ṣoqi, Cherokee suuka, Molale su?ks *claw*, Aleut čaq *hand*, Inupik Eskimo aṣṣaq *finger*, Zuñi sakʷi *leg*, Tunica -aška, Chitimacha so, Kutenai -ƙik *foot*, Kalapuya ƙuk *scratch*, *dig*, Zuñi ƙakʷ- *perforate*, etc.

*(n-)ƭuqhe/tuqe *top*, *horn*, *head*, *mountain* (other perhaps related forms include *toni/totoni *ear*, *horn* and *tumi *feather*, suggesting this may be a compound of elements meaning *point* and *large*). Otomi of Mezquital etc. ƭʌhʌ, Mazahua ƭehe *mountain*, *woods*; (Jiliapan nƭue, Acapulco -l?ue *mountain*); Chocho tuku, Mazatec of Huautla and Mazatlan hku, Soyaltepec tku, San Juan sku *head*; Cuicatec dutiku *mountain* (first element *su, perhaps related to *ši *protrusion*); Trique ku *horn* (*tku); Amuzgo

skeN *head*, Mixtec ntiki, ntiki *head, point, horn, up* (with variation of form and meaning in the dialects). Cf. also Nootka ƫuh- (*ƫuqh), Takelma takax, Fulnio tka, Lule toko *head*, Totonac taqaan, Yokuts thuk, Paez tokne, Mayan *çikin, Arawakan *teki *ear*, Klamath tuuki, Mam tuka *horn*, Comox λaλuχ?i *feather*, Atacama tikne, Tarasco tokoci *tail*.

*qe/qhe/ke pronominal root and interrogative. Jonaz ikax^{w} *I*, ixek^{w} *thou*, ka?ano? *who*; Jiliapan kaki, Acapulco kauk, Matlatzinca kaki *I*, Acapulco heuk, Jiliapan huk *thou*; Acapulco ko?wa? *who*, Acapulco kanen *what*; Otomian *ka- alternate pronoun stem (more common is nu-), Mazahua kho *who*, Tenango ka *what*; Chocho and Popoloc ha?aN *I*, Chocho ha'aN toma, Popoloc ha?a, Mazatec of Huautla hi *thou*, Mazatec hme-ni *what*; Amuzgo ha *I*, haa *we*, lho? *what*; Huave ši-ke *I*, i-ke *thou*, hane *who*.

A few additional examples show the equivalence of Jonaz x to Otomian and Pame-Matlatzincan h:

*qhamu *earth*: Jonaz uxa, Matlatzinca hani, Jiliapan ihyau, Acapulco kopu?, Otomian *hamu in Mazahua homi, San Gregorio, etc. hɔi, Mezquital hai.

*qheku *thou*: Jonaz ixek^{w}, Acapulco -heuk, Jiliapan huk.

*qhawu *drink*: Jonaz raxa?, Acapulco -hau?, Jiliapan man-hu.

*qhani-ne and *ne-qhani *tongue* (perhaps *ne is the proper element for *tongue* and *qhani *long*). Otomian *khani(-ne)/kikhni in San Gregorio khaNni, Santa Clara khoNhe, Mezquital xaNne, Tenango xani, Mazahua kihñi; Acapulco či-kauN (*ši-kanu, with first element meaning projection), Matlatzinca šuni (š perhaps from the group *šk); Chocho kahne-, Ixcatec nihñe, Popoloc nyehe-, Mazatec nihen, nehen, nahin. Note that the order of elements in the reconstruction agrees with the normal usage in the two sub-divisions, *long-tongue* in Otomian but *tongue-long* in Popolocan.

7.3. Huave and Otopamean have both labial and labiovelar stops, p and k^{w}. Zapotecan has only p; Chatino, Trique, Mixtecan and Popolocan only k^{w} except for scattered instances in diminutive words (already discussed) and other occasional forms, which include recent loans. Evidently the old *p and *q^{w}/k^{w} fell together in Popolocan-Zapotecan in one or the other of these original sounds. Before rounded vowels, we find unrounded k. This fact and the circumstance that Chatino, which is very closely related to Zapotec, has the rounded stop, suggest that the fusion was first to k^{w} and only later became p in Zapotec or that there was non-contrastive, dialect variation between a [k^{w}] and a [kp] pronunciation; or that a syllable like *po could become ko in pre-Zapotec by virtue of close contact among dialects using the different variants. A special rule, presumably of later development, may be that *k^{w} in unaccented syllables of Trique and Amuzgo loses its labialization.

Examples of original *q^{w} are:

*qh^{w}eri/qh^{w}eni *turn, go, run*; *qh^{w}e *rabbit* (*'the runner'*); *q^{w}e?wi *chase, give*; *k^{w}eci *round, turn*. Huave -k^{w}ireeč *turn*, -k^{w}ir *run*, koy *rabbit*; Isthmus Zapotec pitola *round*; Trique ga?wi *give*, gačiN *round*; Mixtec k^{w}a'a *go*, Mechoacan Mixtec ku?wa *give*, Huitepec tikute, Mechoacan kut^{y}a, Jocotic-pac tikuca *round*; Popoloc kuchi, Mazatec thi (perhaps ku- reinterpreted as a verbal element) *round*; Otomian Mazahua kh^{w}a?ni *run*, Mezquital x^{w}a, Mazahua kh^{w}a?a *rabbit*, Mezquital kuwi *chase*, k^{w}emi *fold back*, go?ci *turn*. Cf. also Cherokee sakwaliyi, Tonkawa kopul, Tunica kɔra *round*, Tunica kura, Hanis k^{w}l-, Chitimacha ku'iht-, Algonkian *k^{w}etekw- *turn*, Tlingit ku *walk*, etc.

*q^{w}awa *sibling*; *qh^{w}awa *older sibling, uncle* or *aunt*. Huave koh *older sibling*; Trique žugwe (*ti-kuwe) *sibling of opposite sex*; Cuicatec kaa?wa *brother*, Mixtec ku?wa *sibling of opposite sex*; Ixcatec k^{w}a?a, Mazatec nčukh^{w}aN, nčikh^{w}aN *aunt*; Otomian Mezquital gu *brother*, x^{w}aNdaN *older brother of man*.

*q^{w}a(ne) interrogative. Huave k^{w}ane

what; Chatino nikʷa, Zapotec *kʷina/kʷona *what* in Miahuatlan kon, Villalta bin?, Comaltepec bin, Santa Cecilia binna?; Tamasola kʷinu *what*, Mechoacan yookʷan, Cuilapan kʷama *who*; Acapulco koʔwaʔ *who*; Mazahua kho *who*. Cf. also Wiyot gʷiłwa Shasta kuuća, Washo khuŋathe, Haida kus, Tsimsian ku, Nootsack kʷnči, Coeurdalene xʷhi, Zuñi kʷaʔpi Tzotzil ƙusi *what*, etc.

*qʷesi/qhʷeṣi/ṣi-qʷeṣ *knee* (*ṣi *protrusion*). Huave kos; Zapotec most dialects *ṣipi, Comaltepec gyoẓi (perhaps from *š-koṣi); Mixtec of San Rafael and Juxtlahuaca kondo; Mazatec of Huautla ško *knee*. Cf. also Witchita -kʷas, NE Pomo šikono, Lenca kutu, komo, Gallice Athapaskan -kʷayʔ, Siuslaw kuk *knee*, etc.; perhaps related to *qʷeni *turn*, *bend*, *round* (see above).

Comparisons involving old *p are:

*peni/peli *leaf*, *bark*, *skin*, *lip*. Huave -p *leaf*, -pang *bark*, -pal *lip*; Zapotec *pan-laka (from *leaf-ear*) *leaf* in Isthmus pantaka, Mitla balag, Villalta ʟagiʔ (fortis ʟ reflects the coalesced first element), Tejalapam liaga, Tlacochahuaya ndag, Zapotec *ṣapa *bark* in Miahuatlan and Coatlan šab-, Tejalapam ṣaba; Isthmus Zapotec pantati' *bark*; Trique rekoh *leaf*; Amuzgo -ko *leaf*; Otomian *ppaši *leaf* in San Gregorio hpaši, Tenango paši; Acapulco ni-bbiehhagŋ *skin*, *bark*. Cf. also Eskimo pilu, Yana ťaapal-, Wappo -pel, Yuki pal, Chontal ɬ-pela, Xinca piya *leaf*, Lenca nepel (*mouth-leaf*), Yuki namlat (from *nan-pla-t), Yuma hínpel, Yurok -hipł, Chumash ipel, Chontal -peł *tongue*, Wakash *pala-m *hair*, *feather*, etc.

*(ni-)pawa *black*, *night*. Huave -beor *black*; Cuicatec ngʷinu, Mixtec of Jocoticpac kʷa, Chigmecatitlan kune, Tamasola nikʷaa, San Miguel akʷaa, Mechoacan cakʷaa, Cuilapan cakʷaa *night*; Jonaz umbo *black*; Matlatzinca -bo-, Jiliapan kumpu, Acapulco nambu *black*; Mazahua -mhpothi, ʔbo-, San Gregorio pothi, Mezquital boi *black*.

*(ni-)pacci *louse*. Huave mbat; Zapotec *peʔcciʔ, Chatino kʷitʸi; Amuzgo -ku, Mixtec *yuku, Cuicatec ʔiku; Popoloc ku-ceʔ, Ixcatec ʔu-ce. Initial part identical with or confused with *p- animal classifier.

Also *(ni-)pela-ni *person*, *cipa *fire* (cited in **7.1.** above).

7.4. Zapotec alone of all the divisions of Macro Mixtecan shows an unusual scarcity of the phoneme m. It may be entirely absent in some dialects and in other it appears before labial stops and in occasional instances alone. It is possible that it is always a labial assimilation of n, the stop being lost under certain phonetic conditions; that is, *np became *mp and the latter at times mm or simply m. A notable instance in such dialects as Miahuatlan is the animal classifier m-, which we presume comes from the coalescence of the general noun prefix *ni- with the animal classifier *p-. As for proto Macro Mixtecan *m, it has evidently become kʷ in Chatino and p in Zapotec, as for example in:

*toʔmi, ši-tom (first element *protrusion*) *feather*, *hair*. Zapotec *tuʔpiʔ *feather* in Isthmus tupiʔ, Ixtlan tufiʔ, Miahuatlan doʔb etc.; Mixtec tuʔmi *feather*; Otomian Santa Clara štoɴ, Tenango and San Gregorio štaɴ *hair*; Jonaz kanthɛɴ *hair* (for first part perhaps cf. kannuɴ *nose*). Cf. also Moseten tim *hair*, Wintun tomoy *fur*, Bare (Arawakan) -itamine, Arara (Tupian) atemči *feather*, Yokuts tamooɔh *beard*, Huastec toom *grass*, but forms with m are rare and we suspect that this is based on a compound perhaps *tew-meti or *tew-meli *point-fur*.

*ṣuhmana *tail*; also in compounds meaning *scorpion*. Zapotec *(*ṣ-)ṣuʔpana' *tail* in Isthmus ṣṣupanaʔ, Ixtlan ṣupana, Miahuatlan šbanʔ, Villalta ẓban, etc., Miahuatlan mbak-šub *scorpion* ('dog with tail'); Mixtec *ɬuʔma *tail* in Tamasola duʔma, San Miguel etc. suʔma, Huitepec luʔma; Mixtec of Mechoacan ti-suʔma *scorpion* ('animal with tail'); Trique dune *tail*. Possibly in ultimate origin an augmentative of the preceding, the first consonant derived from *ṣh, the augmentative of t.

*qomi/qhomi *four*, also reduplicated *qoqhomi with last syllable sometimes lost

or replaced; in Zapotec and Mazahua, augmentatives have the meaning of *nine*; *ye-qho *two*. Zapotec *kko?pi *nine* in Miahuatlan ku?b; Mixtec kumi, Cuicatec kuun? *four*; Trique ga?anh *four*; Ixcatec and Mazatec ñuhun *four*, Mazatec ñahan *nine*, Ixcatec yuhu, Mazatec hau, hu, *two*; Otomian *koho *four*, Mazahua yehe, Otomi yoho *two*. Cf. also Mayan *kane *four*, Kalapuya kemi, Takelmo ka?m, Chumash *iskom, Iquito komi, Miwok keŋe, Ona koni, Tonkawa ketay, Yanayuki *?akho, Athapaskan *n-akhen, Mayan *ka?i, Quechua iskay *two*, etc.

*sa'ma/ṣahma *cloth*. Zapotec *ṣa?pa? *clothing*; Mixtec *sa?ma *cloth*; Popoloc and Chocho suun *paper*.

*mewo/wemo *cloud, smoke, black*; Zapotec *pewu *cloud*; Cuicatec mee, Mixtec *yu?ma *smoke*; Mazatec hma *black*. Also cf. Hailtsuk waχ, Cavineño wani, Urupa iwi *smoke*, Quileute ?awii, Aleute amax, Eskimo unuk, unnuk, Mataco honači, Guachi wi, Lule wiho, Vilela wi, Cuitlatec wiy *night*, Cauqui umpi, Sipibo wisni, Guaiquer waniš, Guambia wani, Misquito walpa, Paya wanaka, Ataroi (Arawakan) wayu, Jemez wehe, Gabrielino woŋat, Botocudy wa *cloud*, Huarpe hom, Sipibo wiso, Chapacura witam *black*, etc.; the forms with m in Macro Mixtecan may derive from a compound *wen-mel *cloud-black*.

*me demonstrative. Chatino k^{w}a, Zapotec *pa *that*; Trique manh *that*; Mixtec of Cuilapan meeɬa, meena *that*.

*numa *root*. Zapotec *lopa; Chocho nume-, nue-, Popoloc nuwee, Ixcatec and Mazatec nahme *root* (Mazatec dialect variants nihmye and ñuhme perhaps by influence of words for *yam*, like Ixcatec nyama).

7.5. The development of the sibilants in Macro Mixtecan is fairly complicated. *š evidently fuses with s in Otomian and Huave, giving s in Otomian but in Huave s or š according to the following vowel; fuses with *č in Zapotecan, giving Chatino r or t, Zapotec *š, with different reflexes, as š č c s, in the dialects; fuses in Trique with both *č and *t to give ž/č except before the vowel i, where it fuses with *s to give z/c (before other vowels *s gives d/t); is retained in proto Mixtecan but has three different reflexes, č y h, in the dialects, and gives s before a in Mixtec and Cuicatec; gives š or č in Popolocan according to the phonetic context. The retroflex shows no special reflex in Huave, is retained in proto-Popoloc-Zapotecan, and gives š in Otopamean. The dialectal development in the latter two divisions is complicated: Chatino has s; Mixtecan dialects s, d or l, thus fusing either with *s or diminutive *l, but we have to suppose a separate phoneme in proto Mixtec, which we set up as *l to account for the modern developments; Trique apparently also fuses ṣ with *s, giving d/t; Popolocan maintains the retroflex, except for possible positional variation. In Popolocan dialects and in Mixtecan, ṣ before i goes to š (often distinct from the reflex of original *ṣ). In dialects which do not have a contrast between š and ṣ, the reports do not always clearly indicate the quality of the consonant; in such cases š (or an equivalent letter) is often used, but the actual sound may be retroflex. As for *s, except for dialectal and positional variation, it was evidently maintained in all three of the main divisions of Macro Mixtecan. Local developments in Popoloc-Zapotecan include: t in Chatino and some Zapotec dialects; d/t in Trique; d in Cuicatec and some Mixtec dialects. In Otomian and Zapotec dialects, *s often develops to z in a manner parallel to the change of simple stops. Otomian *š does not follow this rule, suggesting that it perhaps is to be counted as an aspirate.

As has already been indicated, the three original sibilants were in alternation, so that the same root frequently shows two or all three of them. Examples:

*(yi-)še/se/ṣe *hair, feather*, Huave šiic, šiil-eed *fuzz*, šiit *cord, vein*; Chatino kityin (*yič-yina perhaps *hair-bird*) *feather*, Chatino kičon? (*yič-yanah perhaps *hair-beast*),

Zapotec *yišša? *hair* (dialect forms kičča icca?, yis etc.); Trique to *feather*; Cuicatec dudu-tu *feather*, Mixtecan *yiso *hair* in Amuzgo -so, Mixtec (dialects forms) ?idi, ?iši, Cuicatec yudu *hair*; Popoloc ṣa-, Ixcatec ša, Chocho kaši, Mazatec ncha *hair* (Mazatec ch from *s in the consonant cluster); Otomi ši, Mazahua ši?i *feather, fur*; Matlatzinca šiphʌki, Jiliapan šku?u *feather*, Matlatzinca šinu *hair*; Jonaz rise *feather, skin*. Cf. also Yuchi soN, Cataba si, Pawnee ?usu, Muskogian *hisi(ki), Yokuts ṣiliṣ, Takelma seensis, Nezperce simtey, Totonac šuuwa?, Mayan *ṣi'il *hair*, etc.

*šini/ṣini/sini *nose, projection, long thing*; compounds šin-ku (*nose-point*), šin-tha (*projection-stone*) *nose, bone*. Huave -šing *nose*; Chatino siyeN? (*siñe-), Zapotec *ṣina *nose*, Chatino stʸi?, Zapotec *ṣiši *teat* from *ṣiqi with palatalized second consonant), Chatino ke-styin? (from *yikke-ṣiši *head-point*), Zapotec *ṣipi *knee*, perhaps Chatino tihoN, Zapotec *šitta *bone*; Trique dakiN *nose*; Mixtec *sini *head*, Cuicatec dutu, Mixtec *šiti(N) *nose*, Amuzgo -steN *knee*; Chocho čiru, Ixcatec čithyuN, Mazatec ntithoN, Popoloc rithoN (r from *nt) *nose*, Popoloc čiki, Chocho čiči?e- *teat*; Otomi šiñu, Mazahua šihñu *nose*, Otomi *ši?pa *teat*; Jiliapan šiñu *nose*, Jiliapan šiši? *teat*, Acapulco či- prefix in words for *nose* and *ear*; Jonaz kannuN *nose* (perhaps from *kan-šnu, with initial element as in kantheN *hair*, kan?i *hand*). Cf. also Chitimacha šiš, Xinca sanari, Tlingit łuk, Milluk łina, Chemakum simuusit, Wintun łinik, Yokuts ṣhiniḳ, Takelma siniix Tepehua łišin, Quechua sinqa *nose*, etc.

*ṣa/se/ši *animal, bird, deer*, etc. Huave šikʷiw *deer*; Chatino snyi *dog*, Zapotec *-ši?na *deer*; Cuicatec ?yada, Mixtec *łaa, Amuzgo -sa *bird*, Mixtec *yiłu *animal* (in some dialects *deer*, in others *rabbit*); Popoloc ṣa-chen *bee* (*animal-honey*), Chocho ?u-ṣe, Popoloc ku-še, Ixcatec ?u-nΔuše, Mazatec ni-se *bird*, Ixcatec, Chocho and Mazatec -ṣin *horse*; Otomi of San Gregorio šaN?yo *dog*, Mezquital zu?we *small animal*; Matlatzinca sini *dog*.

*šawi/sa?wi/ṣahwi *rain, cloud, night*. Zapotec *sa *cloud*; Mixtec sawi *rain*; Ixcatec šhwi, Popoloc thwi?, Chocho rhwi, Mazatec yuhwi, (possibly a compound like *yu-ṣhwi) *cloud*; Otomi šuiN, Mazahua šonmiN *night*; Acapulco -sauŋ *night*; Jonaz usaN *night*. Cf. also Lenca so, Chukchansi som, Mayan Quiche etc. suć, Mayoruna sow *cloud*, Tlingit su, Natick sokanon, Chilango so, Tehuelche sum, łewš *rain*, Interior Salish *sawłkʷa Papago šudagi, Lule so *water*, Zuñi łu?wa *cloud*, Guapichana išawak, Guajiro sa?wai, Toyeri siwiN *night*, Tupi *suni, Dou -čawa *black*, etc.

*šopni/sopni/soponi/ṣophoni *six*, diminutive *three* or *five*, augmentative *eight*. Zapotec *t-šoppa *six* (-ppa as in some of the other numerals), *t-conna (from *t-sonna) *three*, *ṣ-ṣonna *eight*; Ixcatec šhoN, Mazatec šhoN, čhuN *six*, Ixcatec š?oN *five*. Cf. also Algonkian *ne-?łwi (*ne- perhaps numeral prefix, found also in *one, two, four*), Coast Salish *łixʷ, Chinookan łun, Yokuts ṣoophin, Maidu saṗi, Yakona *spnł, Osage sapsiN, Oneida ahsaN, Mayan *oṣe, Quechua and Aymara kimsa, Cholona is- *three*; possibly from *ṣew-pen *old-finger*, as an ancient name given to the middle digit and used to express *three*. Our reconstruction with *p in Macro Mixtecan is based on the comparative material from other groups. Even though this is the only case so far showing h and ? as reflexes of aspirated and glottalized labials in Popolocan, it is not illogical because the normal development of *p would be to *qʷ and this would reduce to *q before the rounded vowel.

7.6. Various comparisons point to an *r in the protolanguage, but fairly complicated Popolocan reflexes leave more problems than can be satisfactorily solved on the basis of the possible cognates so far noted. Two solutions suggest themselves. Those sets of cognates that do not seem to fit a reconstruction with simple *r, may involve other retroflex phonemes, such as ç. Or they may

have contained various consonant clusters with *r. Merely by way of suggestion, we have attempted to suggest phoneme groups in our reconstructions. It is assumed that the regular development of *r, outside of special sequences, is to *r in Huave, Zapotecan and Popolocan, *d/t in Trique, y in Mixtec, d in Cuicatec, loss in (secondary) preconsonantal position and t in certain clusters in Amuzgo, t in Chatino and n in Otopamean. In some demonstratives and pronominal forms, r may be retained in certain Mixtec dialects, in Otopamean and Chatino. The cluster *nr gives r in Trique against the development of simple *r; *nr in Popolocan gives nç, going to nc in some dialects, with the n subsequently lost at times. In Otopamean *nr apparently gives dd, nd, n in the different languages. It should be remembered, of course, that *r was in morphological alternation with *n and *l.

Examples follow, including some restricted to two or just a few of the languages.

*(n-)rewa/re?wa/newa *mouth, tongue, say, eat, stomach.* Huave -niw *tongue*; Zapotec *ro?wa, Chatino tu?wa *mouth*, Ixtlan ra-, Villalta ne?, Mitla na, Tejalapam arna *say*, Zapotec *-awa *eat* (initial *r or *n- perhaps reinterpreted as verbal prefix); Trique du?wa *mouth*, -tah *say*; Cuicatec duuwi *mouthful* (perhaps a collective with the ending seen in the Amuzgo plural), Amuzgo ndo (pl. ntue, perhaps from *n-t-ruwa-ye), Mixtec yu?u *mouth*, Mixtec of San Rafael wilu *eat*, Mixtec *yuwa *stomach*; Popoloc ru?wa-, Chocho rwa, Ixcatec 'cwa, Mazatec 'cwa, ncu?wa, cu?wa (dialect variants) *mouth*, Popoloc ru, Ixcatec and Mazatec cu *say*, Mazatec 'cwa, n'cwa *stomach* (Chocho ʀuwᴇɴ- *stomach* with a preposed *k as in Jiliapan kne *mouth*), Jiliapan -miñau, Acapulco -nnauŋ, *eat*, Acapulco -ne, Matlatzinca nina, Jiliapan kne *mouth*; Jonaz u-ni *mouth*; Otomi ne, nde, Mazahua ne'e *mouth*. Cf. also Caddo niwača, Wiyot -lul, Yurok -luł, Yuki noon, Xinca numa, Tlappanec raun, Subtiaba daw, Omurano raw, Yaruro ño, Coto ñowi, Macú *no, Arawakan *numa, Caraya aru *mouth*, Tunica -lu, Yupic Eskimo ulu *tongue*, Tonkawa newe-, Pomo nu, Athapascan *-ni *say*, Takelma laaw- *call*, Yokuts liwaa *speak, language*, Wakash *nw *sing*, Molale nu- *eat*, etc.

*(ʂ-)rowa/ro?wa *skin*, with first element perhaps connected with *projection* or *hair*. Ixcatec rruwa, Mazatec of San Juan çhwa, Chocho rua, Popoloc thu?wa *skin*. Cf. Yurok now, Chitimacha nuk *outside*, Tzeltal lok, Quechua ʃuqsi- *go out*, Mariposa lawuᴛ, Tzotzil nukul, Tzeltal nuhkul *skin*, Aguacatec halkok, Nomlaki loni *bark*.

*(ni-)rani/ruwa-ni *white*, with second form perhaps a reshaping to resemble an adjectival derivative of *skin*, that is 'skin-like.' Huave raan; Zapotec of Mitla nol; Mixtec of Juxtlahuaca yaña, San Rafael yaa; Ixcatec ruwa, Chocho rwa, Popoloc thuwa, Mazatec çwa, tawa; Acapulco kaddua, Jiliapan ška-ndoa; Jonaz kunu?u. Perhaps cf. Muskogean laani, laana, lakni *green, yellow*, Chinanteco ne, na *yellow*, ri? *green*, Timucua nali, Caliana alay, Guaiquer naram, Jicaque lu, Catawba nusiɴ *yellow*, Cholona lin, Sabela nerugi, Oneida -nan?t- *green*.

*ruqʷa *furrow*. Trique dukʷan; Mixtec yukuN.

*rani/rino *brother*. Trique dini *man's brother*; Cuicatec ?diino, Mixtec yani *man's brother*.

*reni/neri/neni *blood, flesh*. Huave -nih *flesh*; Chatino tni, Zapotec *reni *blood*; Trique nni *flesh*, tuɴ *blood*; Amuzgo niam?, Mixtec niyi, nii, niñi (the last from *niyi-ɴ by nasalization of *y, the nasal element corresponding to -m in Amuzgo) *blood*; Popoloc hni?, Chocho thi-, Ixcatec ɾhiɴ, Mazatec hni, hñi, hiɴ (from an old compound, *kenni/qhe-nni, or unrelated to *reni) *blood*. Matlatzinca rini *flesh*. Cf. also Atacama lari, Macro Chibcha *ari-pi, Cuitlatec ali?bi, Mixean *ni?pin, Tarahumara la, Guarajio heero, Opata ?eerat, Omurano lana, Apiaca (Tupian) aranka, Leco -le, Kwakiutl ?lkʷa *blood*, etc.

7.7. Original *y and *w generally remain.

They may be lost in contact with like vowels, whether original or secondary, according to rules that are different in the several languages. In Chatino and most of the Zapotec dialects, the two semiconsonants become k (or g) before the corresponding vowels. In three of the four Popolocan languages, *y is lost (Popoloc) or changes to š (Ixcatec, Mazatec) when it comes to stand in preconsonantic position. Preconsonantic y is also lost in Amuzgo. Assimilation of *y to following *w in Trique and Mixtecan with subsequent loss in the latter according to the rule already mentioned, seems to be involved in at least one important correspondence, to wit:

*yowi(-qhow) *two*. Otomi yoho, Mazahua yehe; Ixcatec yuhu, Popoloc and Chocho yu, Mazatec hu, ho, hau; Trique wwih; Amuzgo we, Cuicatec ʔuuwi, Mixtec ʔuwi; Zapotecan *t-yoppaʔ (pp perhaps from *wqʷ or perhaps better from *w plus *p belonging to an old suffix) in Chatino tukʷa, Istmeño ččuppa, Ixtlan čuppa, Comaltepec and Miahuatlan čopa, Loxicha čop, Villalta čopiʔ, Mitla tyoʔp, Tejalapam tyupa, Coatlan topa); Huave ih- (possibly an extreme reduction from a form with front vowel *ye-qho). Cf. also Yaudanchi yeťa-w, Lacandone yet, Paya yo *together*, Napeca yu *with*, Kwakiutl yph- *join fibers* yqh- *weave a net*, Misquito aydruba- *assemble*, Ataroi yaytam, Guapichana yaytan, Kiowa yi, Quechua iskay, Timucua yuca, Mobima oyra, Urucu yegarokum *two*, Karok yiθ, Hanis yʔay, Siuslaw hayna, Molale ʔay, Nomlaki hiyat, Zoque ʔaya, Yucatec yanal *another*.

Examples of *yi to ki and of *wu to ku are given in Swadesh 1947, except that the formulation there is inverted; that is, the dialects with ki and with ku were then assumed to show the archaic form. Examples:

*yeʔna/yehna/yonah *chile*, secondarily *red* (semantic relation as in Huave kanc *chile*, na-kanc *red*). Zapotec *yiʔna *red*, in Ixtlan yinaʔ Yalalag yinʔ, Isthmus kiʔña; Ixcatec and Chocho hña, Popoloc hna, Mazatec hña, ña, *chile*, Mazatec of Huautla ni *red*; Trique nnah *red*; Cuicatec yaana, Mixtec yono, yunu, šunu, ñunu *red*; Otomi of Mezquital ʔñi, Mazahua ʔiʔi *chile*; Jonaz ennin? *red*.

*yeʔ(wo-m)/yaʔ(wo-m)/yola/yaloʔ *fire, burn, sun*, secondarily *moon, night*. Chatino ki, Isthmus ki, Comaltepec etc. giʔ, Ixtlan and Villalta yiʔ *fire*, Chatino -tikiN (*ši-yi-n), Zapotec *yollaʔ/yallaʔ *burn*, Zapotec *p-ewoʔ *moon*, Zapotec *(r-)yela *night* (contraction of *ry to *r, *šš or *ṣṣ in separate dialectal developments) in Chatino tla, Ixtlan rela, Santa Cecilia ṣile, Miahuatlan yalʔ, Loxicha gel, Villalta šeʔeliʔ, Yalalag yel, Mitla yɛl, Tejalapam uṣini; Trique yaʔaN *fire, hot*, awi *moon*; gwi *sun* (perhaps from *k-yawi); Amuzgo čam (*š-ya-m or *k-ya-m), Mixtec ñuʔuN (nasalization of *y to ñ and rounding of vowel due to following *-m) *fire*, Amuzgo čiʔ (*š-yiʔ or *k-yiʔ), Cuicatec ʔiiyu, Mixtec yoo, šoo *moon*, Cuicatec yaʔaN *fire, sun*; Otomi *hyati, Mazahua hyari *sun*. Cf. also Yuchi yahti, Natick yote, Pequot yewt, Yuki yim, Washo t-ʔiyu, Lenca yuka, Eskaleutian *hi-yeki- (Aleut hiG-naq, Yupik ki-niq, Inupik iŋ-niq), Chinantec *ʔyiu, Teheulche yayke, Yurakare ayma, Terraba yuk, Apolista yuo *fire*, Misquito yu, Catoxo yose, Sec yoro *sun*, etc.

*yeti-ni/yeyet-ni *skin*. Zapotecan *yeti-ni in Chatino kihiN, Isthmus kiti, Comaltepec gidi-, Mitla gid-, Ixtlan yeti, Miahuatlan and Santa Cecilia yid; Mixtec ñii, ñii, ʔiiN (from *yiyi-N with loss of medial consonant and nasalization of the first *y).

*pi-woša/wopiša *sun*, also with ṣ or s in place of š; *wiṣi *hot*; *wisi (diminutive) *cold*. Chatino kʷča (kʷ from *kkʷ, with k from w before u and kʷ from *p), Isthmus kupiča, Mitla gubij, Santa Cecilia biẓ, Villalta bwiz, Tejalapam ubija, Tlacochahuaya ubiji, Coatlan wiš *sun*; Coatlan uže *hot*; Amuzgo wi, Mixtec of San Rafael wišiN, Huitepec widi (d perhaps medial reflex of *ṣ) *hot*, Mixtec *wiši (š palatalized from

*wisi) *cold*. Dakota wi, Molale was, Keres ʔošač, Aguaque wiši, Mura wese, Matanawi wi *sun*, Chitimacha wašta *day*, Catawba wansa, Xinca wesa, Santa Clara Costanoan usi, Mutsun awisna, Matanawi wisi *star*, Chitimacha wiš-, *burn*, Natchez wah, Simacu ohsi, Wiyot was *fire*, Wiyot waław, Ulua aws- *hot*, etc.

*wuhṣṣuh *smoke* (perhaps a compound); *winqo *cloud*. Huave oik (*o-wiqq) *cloud*; Zapotec *wuʔṣṣuʔ in Isthmus kuʔṣṣuʔ, Mitla guš, Tejalapam uṣu, Tlacochahuaya huʔṣ; Mixtec wiko *cloud*. Cf. also Jemez, wehe, Gabrielino woŋat, Macuni awšen, Guari way, Yamana awaka *cloud*.

Evidence for š from preconsonantic *y in Popolocan follows:

*(ku-)yuti/k-yuti *tomato*; *-nruwa *husk tomato* ('tomato with skin'). Chocho yuti-rua, Ixacatec ɾu-šti-rruwa *husk tomato*, Popoloc cuti, Mazatec chuti, šuti *tomato*.

*yute *comb*. Chocho yute, Ixcatec šte.

*ya-qan *forty*, secondarily *twenty* (from *two-twenty*). Chocho yakan *forty*, Ixcatec škaN *twenty*; Trique iko *twenty*.

*yaku-n *eye*, *face*. Chocho yaku, Ixcatec -škun *face*, Mazatec škun, Popoloc kun *eye*; Huave -niiag *eye* (*ni-yaqo, with first element perhaps related to Zapotec lu, Mixtec nu *eye*).

*yaka *foliage*, *leaf*, *tree*. Ixcatec and Mazatec ška *leaf*; Zapotecan *yaka *tree* in Chatino yka, Zapotec yaka, yaga, yag.

*yeqheʔ *sin*. Popoloc hyeʔ, Mazatec hye, he, Ixcatec šhe.

*yeqhe *big*. Popoloc hye, Mazatec hye, he, hi, Ixcatec šhe.

7.8. *t is usually retained or weakened to d, but goes to h in Chatino and to ž/t in Trique. In some Zapotecan dialects, d is fricative; and the corresponding strong form, derived from *tt, is accordingly *θ*, that is, a strong fricative. The development of simple t in Jonaz and intervocalically in Mazahua is to r. There is a regular positional variation of *t before *i to *č in Mixtecan, and the developments coincide with original ç. Examples of most of these developments are to be found in the cognates already cited. Others are given in the comparative studies of Zapotecan and Mixtecan, cited in the bibliography, although the previous works have different reconstructions of the phonemes.

In addition to the stops, Macro Mixtecan must have had the affricates *c and *ç, examples of a few of which have come up in the cognate groups. We identify these affricates as the diminutive and augmentative alternates of *t, but do not attempt to trace their correspondences in the various languages.

The old nasals were *n and *m. They were mostly retained intact but were lost or assimilated in some positions. In syllable final, they caused nasalization of the vowel in various languages, but not in Zapotec. In Trique and Mixtec, a vowel nasalized by m is rounded.

7.9. We do not attempt to give more than some generalities on the development of the vowels. It is seen in the examples that they often coincide among the several parts of the Macro Mixtecan complex, or show minor variations compatible with divergent dialectal developments. In some cases, there is evidence of assimilation to the consonants or to the vowels of the preceding and following syllables. As shown by Arana (1957b), assimilation accounts for the correspondence of Mixtec u..u (that is, u in both syllables) with Trique u..a; where the first vowel is lost in Trique, the correspondence seems to be of u with a but the first syllable in Mixtec gives the key to the divergence. It is possible that similar influences may account for the excess of vowel types found in Otomi as compared with other Macro Mixtecan languages. Thus, *a..u may have been assimilated to ɔ..u, and *o..e to ʌ..ʌ. Phonetic contrast would have developed out of the mechanical change when the assimilating vowel was lost in contracted stems without the assimilated one reverting to its original form. These questions of course need much detailed study.

If we assume Otomi ɛɔʌ to be secondary assimilation products, six vowels remain to be accounted for in the different members of Macro Mixtecan: i e a o u i. Correspondences between o and u, for example, in Zapotec dialects require that the question be studied as to whether they eventually go back to a single phoneme or whether they stood in contrast to each other in proto Macro Mixtecan; a similar problem applies to e and i. Our present tentative assumption is that the original vowels were i e a o u; that many present cases of i and u go back to e and o; that i may be secondary. It is clear that position in the word and adjoining vowels played important roles in the development, and there is good evidence for contraction of sequences like aw ow ew, etc.

Diphthongs and double vowels in various of the languages are due in part to the loss of intervocalic y or w in contact with similar vowels, in part to lengthening under the accent. Huave shows both of these effects, and at the same time a diphthongization of certain long vowels under the influence of a following vowel; this can even be illustrated with recently borrowed words, like meač (also meč) *wick*, from Spanish mecha. There is as yet no proof of a contrast between long and short vowels in the proto period.

In making comparisons among the Macro Mixtecan languages, one often finds vowels in the cognates that cannot be explained by secondary processes. This leads to the inference that there were morphological alternations, for example between e and o, but we still lack any clear evidence of what the function of the process might have been. Modern Huave interchanges e and o as between diminutive and augmentative forms of adjectives, but there is no evidence either inside or outside of Macro Mixtecan to indicate that this is an archaic feature. Other Amerindian linguistic groups show diminutive-augmentative substitution between high vowels and low vowels (i or u, against a) but not between front and back, and this might be reflected in Mazatec ñuhun *four*, ñahan *nine*.

8. Our examination of structure and phonology gives us several features which can be plotted upon the diagram of lexicostatistical divergences to obtain a check upon the adequacy of the classification. To be of value for this purpose, the isogloss should be one that applies to more than one language or family but not to all the linguistic entities in the area under consideration; and it should preferably be something positive, a common innovation rather than a common retention of an archaic feature. In structure, it is more difficult than in phonology to determine what represents the new item. The use of classifier prefixes in the noun is something fairly special and therefore probably an innovation. Among the languages we have considered, it is found in a continuum of entities as plotted on the diagram, almost but not quite coinciding with the Popoloc-Zapotecan division of Macro Mixtecan. Therefore, it tends to confirm our classification. The fact that it is attenuated in Zapotecan, is in keeping with the marginal position of this subdivision. The use of possessive prefixes in Huave and Otomian may be an innovation within Macro Mixtecan; if this could be flanked by a number of other common new features, it might argue for a closer unity of Huave and Otomi than our diagram shows. As it is, one infers that it is a secondary matter based on the contact of the two entities with languages like Uto-Aztecan and Mayan. It thus need not be more significant for common origin than the presence of possessive suffixes in Cuitlatec or the placement of the substantive qualifier in second position in Cuitlatec and in some of the Mayan languages.

Evidence for the movement of the accent to the second syllable of the stem and the subsequent reduction of the first syllable, which is found in Chatino, Amuzgo, Trique,

Popolocan and Chinantec, suggests another possibility for seeking a genetic proximity. Trique and Chatino also share the change *r and *s to t, but their vocabulary count is not close and there is little in common in their structure which is not at the same time common property with Zapotec and Mixtecan. We infer that Trique and Chatino must have had a period of contact in some prehistoric period but that it was after they were well differentiated. Since Chatino, Trique and Amuzgo in earliest historic times were not far removed from each other, one supposes that their common points of phonetics are indeed due to a period of contact not many centuries ago, which was broken by the expansion toward the coast of the Mixtecs, dating evidently back only a few centuries before the conquest (Arana 1957b).

The monosyllabic tendency of Chinantec and Popolocan seems to mark out another geographic area, perhaps disconnected from that just discussed. Other phonetic points of agreement are the importance of h and the possibility that it may come from *qh in Chinantec as well as in Popolocan. However, in structure and in vocabulary, Popolocan comes closer to Mixtecan and, at a somewhat longer range, to Otomian, with which it also shares the change of *qh to h and the presence of glottalized and aspirated stops. On the map, Popolocan is in contact with Chinantec and Mixtecan, but is separated from Otomian by a large area of Nahua. We infer that the latter is a relatively recent break in the continuity of Macro Mixtecan; there are also traditions which indicate that the Nahuas on the side of the Gulf coast came in to crowd both the Mazatec branch of Popolocan and Chinantec into their present restricted areas. It is very possible that there was once an intermediate language or series of languages between Mazetec and Chinantec. Thus, there is no reason whatever to consider the two families unrelated, but only to recognize that Popolocan has greater affinities with Otomian and much greater with Mixtecan. On phonetic grounds, we may suppose a period of closer contact between Popolocan and Otomian than between the former and Mixtecan.

In sum, the pattern of isoglosses includes evidence for close recent contacts among certain of the languages of the old 'Oto Manguean' theory, and other data supporting in some degree the order of relations given by our lexico-statistic counts; there is no contradiction between these two indications. So far, the number of isoglosses delineated is not sufficient to determine the old dialectal network independently. Our conclusion in this respect therefore can go no further than to affirm that there does not seem to be any isoglottic evidence which contradicts the lexico-statistics.

9. In documentation of our lexicostatistic findings, we give the sets of correspondences counted as cognates in key pairs of diagnostic lists. The internal counts for Otopamean and Trique-Mixtecan are omitted, because they will be otherwise available as soon as the studies of Manrique and Arana are published. However, we repeat two of Arana's counts because of their special importance for the relative placement of Amuzgo and Trique, namely the closest Amuzgo-Mixtec and Mixtec-Trique. For these the complete lists are shown, so that the reader may check our scoring. We give only the cognates for the closest dialects noted by us in the pairs Otomian-Popolocan, Popolocan-Mixtecan, Mixtecan-Zapotecan, and Zapotecan-Huave. In relation to the problem of what should and should not be included together, we give also Manguean-Tlappanecan and Manguean-Macrochibchan. And finally, by way of justifying our relative separation of Chinantecan and Manguean from Macro Mixtecan, we cite the complete diagnostic list for representatives of Popolocan and Chinantecan.

9.1. For Amuzgo-Mixtec, one of Arana's maximum cognate counts was between the

Ometepec dialect of the former (list supplied by W. Cloyd Stewart) and Huitepec of the latter (by Juan José Rendón Monzón). For Trique-Mixtec, the lists are of Chicahuaxtla (by Robert E. Longacre) and of Huitepec; the latter actually gives one percent less than the maximum, but is conveniently used because it coincides with the Cuicatec-Mixtec. The words are preceded by the meaning in English; then follows the Amuzgo, the Huitepec and the Trique in this order; a reconstruction (not proto Macro Mixtecan but pre-Mixtecan-Trique) is placed next in those cases where cognates were counted, followed by combinations of symbols to indicate which languages go together. Paragraphs divide the words into tens, with a number shown for the first in each paragraph.

1. *I* ha yo?o yuNh *yi?w-i MT; *thou* ?u yu?u zo?/re? *re?w-o/se?w-o AMT; *we* haa yo?o ne?/yuNh *ye?w-i/ne?w-i MT; *this* luane sye?e čaa; *that* lua? teyaka mah; *who* ?ne yo?šya ?awin-zih; *what* lho? na?šya nuh-wwin *loho?/noh- AMT; *not* ta- ?nu; *all* ča?co yao ni?; *many* ma-hnde waiwi?i ?uta-ma *ma AT.

11. *one* kui ?iiN ?ngo *?in-ko(yi) AMT; *two* we ?u wwih *wuwih AMT; *big* t?ma ka?nu žačih *catih; *long* taivio kani že?e; *small* kačho li?li llih *lu?lih MT; *woman* yu-sku ñadi?i -žana; *man* can-s?a tee na?u; *person* c-an ñaa-yiw gwi *yina- AM; *fish* -ka čaka žu-kwah *(tu-)yakah AMT (Mixtec from *t-yaka); *bird* -sa -laa ža-tah *ṣah AMT.

21. *dog* -ue? ?ina žu-ne *yena MT; *tree* -?am yuhnu čun *yata-m/ya?am AMT; *seed* -han tata kaN *qhan AT; *leaf* -ko ndawiši rekoh *n-rekoh AT; *root* nč?io yo?o- ya?a *yo?a AMT; *bark* -kua čakʷa ki *(t)yakʷi AMT; *skin* than ñii nnih *rini MT; *flesh* se?tkui kuñu nne *kuye-n AM; *blood* niam? niñi tuN *nira-m AM.

31. *bone* ce? yiki ku *yikʷi MT; *grease* nčen? de?eN na-mi *se?en AM; *egg* ce? ndiw čuh; *horn* ce-hnde ndiki ku; *tail* can-kio? lu?ma dune? *ṣu?ma-ne? MT; *feather* ce numi to *siso AT; *hair* so ?idi- wwe *yiso AM; *head* šken ndiki ?awi; *ear* -wa?ki lo?o rakih; *eye* -?am tinu rune-yaN.

41. *nose* ntyu? dit-ñi- dakiN; *mouth* ?ndo yu?u du?wa *ru?wa AMT; *tooth* ce?-n?am nu?o yaN? *nu?yam AMT; *tongue* cah ya-yya *(yi)ya(qhe) AMT; *nail* lua-nnai?e-tni dih-rɐ?a; *foot* š?e sa?a dako *ša?a/sako AMT; *knee* ce?sten ru?-čuh-; *hand* -?ɔ nda?a ra?a *nta?a AMT; *belly* cia žiti riki; *neck* štyo? kʷa- žia.

51. *breast* nckuain ne?ekadi ži?yaNh; *heart* c-?am ?ini nima; *liver* c-?am tasai-rayah; *drink* -?una ko?o go?o *ko?o MT; *eat* -ki/kua kaši ža *kaki AM; *bite* -nkone -yi?i ža; *see* -nt?ia kunde?e gini?i *(kʷi)nti?e AMT; *hear* -ndine kundedo?o guni *nkʷinte MT; *know* -nthe ko?o gini?; *sleep* waco kudo gatoh *kʷisoh AMT.

61. *die* -nkuai?en kuu gawi? *nkʷiwi? AMT; *kill* -ce-kuai?en ka?ni da-gawi? *nkʷiwi? AT; *swim* -walho? dute guta?zi-žitah *sučeh MT; *fly* -wantha ndawa ?ače-žu-žata? *ntaha-wa/wa-ntaha AM; *walk* -haka kaka ?ače *xaka AM; *come* -nkhuwe? we?eši ga?na?; *lie* wakaten kawa ngah; *sit* -kho ko?o gane *kohwo AM; *stand* -inthe? kunutni niki? *(kʷi)nti AM; *give* -nekya kʷaña?a ga?wi?/riki.

71. *say* -co kuña?a gatah; *sun* nekiam? yika-nΔii gwi; *moon* či? yoo ?awi *yawi MT; *star* -šhu čoo-dini ?ati?i; *water* nda ndute nne *nta(-wca) AM; *rain* ma-kuiwa dau-čau gumaN; *stone* c-hɔ? yuu yih *yuhih AMT; *sand* tai? kuči yo?o-ču; *earth* c-?o ñu?u yo?o *yo?o-n AMT; *cloud* nčkyu wiko nga, *wingo MT.

81. *smoke* c-iam ñu?ma gace? *ya?mi AM; *fire* čam ñu?u ya?aN *(ša)yam/ya?am AMT; *ash* c-haa? yaa yah *yahah AMT; *burn* kuikona? kayu kaka *ka AMT; *road* na-to ?iči če-ne *yite/yito AMT; *mountain* shɔ yu?u kih; *red* we -kʷe?e ma-re *ki-we AM; *green* wi kʷii ma-re *ki-weyi AM; *yellow* kahaN kʷaaN naa-yah *kʷahan AM; *white* kanči? kʷiši gaci *kʷiši AMT (Amuzgo -n- perhaps introduced by metathesis from a prefix).

91. *black* ntam tnuu ma-ru *tam AM; *night* c-ham niu ni *ni(wi); *hot* wi widi ya?aN *wi(ṣi) AM; *cold* taiN wiši nuwih; *full* to? čitu gača *tito? AM; *new* ško saa naka; *good* ya wa?a za?; *round* ceh tikute gačiN *kʷečah/kʷeči-n MT; *dry* tkan yiči na-ko; *name* šue? siwi žugwi *siwe? AM.

It will be observed in the above that the judgment of cognacy in languages like these, because of the amount of fusion that has taken place, cannot depend on a mechanical application of phonologic rules. The possibility of phonemic variation and the influence of different prefixes must be thought of. In the present state of knowledge, one must make suppositions, whether positive or negative. We may accept a cognate by supposing a special factor, or we may reject one by refusing to grant such a possibility. The important thing is to maintain as nearly as possible an equal measure of skepticism or lack of it with regard to all the languages in the comparison. With reference to the present problem, we hope that we have not been excessively inventive on one side and the opposite on the other. If we have succeeded in our aim, then our figures have some relative value, showing that Amuzgo is closer to Mixtec than is Trique.

The basis of the present count differs from that of Arana by the recognition of some consonantal alternations and by the assumption of *qh. The effect upon the scores has not been at all great. Our figures are AM 43%, MT 36%, AT 29%, as compared to Arana's 42%, 34% and 26%. In minimum centuries, we obtain 28, 34 and 41, as against 29, 35 and 45.

9.2. The Otomian-Popolocan count made between Mazahua (as recorded by Don Stewart) and Ixcatec (M. T. Ferández de Miranda), includes 22 cognates out of 97 pairs, as follows: *not* dya ?iya *?i-?ya; *many* ?uča punkhi *po/ṗo/ppo; *two* yehe yuhu *yoqhʷe; *big* noho šhe *ne/ye-qho/qhe; *bird* si?i ?u-ndʸu-še *še/še/ṣe; *louse* ťo?o-če *to/te/če; *seed* ndo?o ndehe *n-to/te(-qhe); *blood* khi?i ɾhiN *khi-n; *hair* ñi-š-ťi ša *ṣi/ṣa (cf. Mazahua ñi?i *head*, ši?i *feathers*, *leaves*); *nose* šihñu čiɾhun *šinu-khuni; *tongue* kihñi nihni- *ni-qhihni/ḱihni; *claw* šoho šku-*šoqa/ṣoqha; *neck* dyizi ndʸasi *(n)kasi; *liver* khurga ?akuN *qhuni/quni; *bite* ño?ni -ne?d *-ne; *say* cu siphi *cu/ce; *star* -ce shehe *qhe-ce; *moon* zana ndusa *sa; *water* ndehe ?inda *?i-nita(-qhe); *rain* dyebe (Otomi ?ye) ɾušti *ḱe/ḱo; *sand* ñoši-(homi) njase *n-yase; *black* po-thi tiye *te/thu.

The Popolocan-Mixtecan count, based on Ixcatec and San Miguel Mixtec (as recorded by Anne Dyk), gives 31 cognates out of 100 pairs, as follows: *I* ?i-nana naa *na-; *thou* ?i-la roo *la/ra-?wo (preservation of *r in Mixtec dialects in demonstrative words); *who* ndara nteha *nte-; *all* kaka taka *-qa; *one* hngu ?iiN *hene(-qu); *two* yuhu ?uu *yowi(-qho); *long* hini kani *qheni/qhani; *bird* -nΔu-še saa *ṣe; *dog* -niña ?ina *(ni-)yina; *tree* yaa yunu *ya-(ta-m); *seed* ndehe ntikiN *n-reghe; *bone* ?inΔa yiki *-ke/ka; *hair* ša ?iši *yeṣa/yeṣi; *head* sk-šini *se-; *mouth* ćwa yu?u *ru?wa; *tooth* ?na?ñu nu?uN *(?i)nu?-(n); *hand* rha tna?a *(n-)raqha/raq̣a; *teat* tu-cu ntoso *(n-)to/co; *kill* -ni ka?ni *-ni; *walk* (f?a-)hi kaka *qhe/qha; *give* -e?e kʷa?a *qʷeq̣e (initial in Ixcatec lost by confusion with modal signs); *say* cu kači *co/ci; *moon* ndusa yoo *(n-)ro (compounded with old *sa *sky* in Ixcatec); *water* -nda ntuča *nita(-wca); *cloud* šhwi wiko *yeqh-wi(n)-qho; *ash* ndasu yaa *(n-)ra; *black* tiye tuuN *te/to; *cold* kiN wihiN *kin; *full* sište čitu *çite/çito; *dry* ci-šehi ?iči *-ce(qhi).

The Mixtec-Zapotec count, based on the San Miguel and Ixtlan (recorded by N. M. Nellis) dialects, shows 36 cognates in 99 pairs, as follows: *I* yu?u/-i inte? *-i; *thou* yo?o lu? *ro?wu/lo?wu; *we* ntu?u intu? *(yi)ntu?u; *this* ñayo?o nui *no-ye/yo; *who* yo nu-ni *ro/no(-ne); *what* nake fia-ni *na/ne; *all* nti?ia itute *(n-)ti/to; *two* ?uwi čuppa *(t-)yowi(-pa); *woman* ña?a niula *(ni*)ya/yo(la); *person* ?iiñuyi/yuwi enne *yen-; *tree* yutuN ya *ya(tam); *root* tyo?olu *(t-)ro/lo; *skin* ?iiN yeti *ye-; *flesh* kuñu fela? *kʷela(-yo); *blood* ñii reni *reni/neri; *grease* ša?aN θa *ša/sa; *tail* su?ma ṣupana

*ṣu?ma(-na); *feather* tumi tufi? *tumi; *hair* ?iši icca? *yeši(ša?); *eye* ntuči-nuu iyya-lo *lo (expressed as compound *bean-face* and *stone-face* in the two languages with *face* semantically from older *eye*); *nose* šitiN ṣina? *ši/ṣi; *mouth* yu?u ru?a *ro?wa; *tooth* nu?uN laya? *la?ya-m; *claw* čiiN citta? *ceni-ta?; *knee* konto ṣifi *(ṣe-)q^{w}o/q^{w}e; *hand* nta?a na? *(n-)ra?a/na?a; *breast* ntoso ṣici? *n-soso/ṣeši?; *eat* wilu -o *we/wo; *sleep* kiši -a?aθθi *-assi; *lie* kandu -atta? *anto/anta; *give* taši -ute *ta/te; *moon* yoo f-iu? *yiyo (related to *fire*); *stone* yuu iyya *yiyo; *sand* yuti yuṣi *yo- (compounds, perhaps originally *earth of stone*); *earth* ñu?u yu *(n-)yo; *fire* ñu?uN yi? *ye?(yo-n); *full* čitu ca? *çe/ca; *dry* ?iči fici *(q^{w}-)yeci.

The Zapotecan-Huave count, based on the Ixtlan and San Mateo (by Milton Warkentin) dialects, produces 29 cognates out of 100 pairs, as follows: *thou* l-i? i-ke *yi; *that* canke aag-ayah *hake; *not* kke ngo *nke/nko; *many* stale šeyay *se (composition of the Isthmus form indicated by *se-ni in other Zapotecan dialects); *one* ttopi nop *ntopi/notpi; *two* ččuppa ih- *(t-)yowi; *person* pinni nipilan *(ni-)pila-ni; *dog* pi?kku? pet *pe?kku-t; *leaf* pantaka o-p *pani; *root* ṣku -šiič *ṣe- (derivatives of *projection*); *bark* pantati -pang *pani (same first element as *leaf*); *grease* sa capay *sa; *ear* tiaka -laag *(ti-)naqa/laqa; *eye* lu -nii-ag *ne/lo; *nose* ṣi -Sing *ṣi (cf. *root*); *tooth* laya -liek *laya/luye-k; *tongue* luči -niw *lew/new; *foot* ñe -leah *ne?yaqh/le'yagh; *knee* ṣipi kos *(ṣi-)q^{w}e/q^{w}o(ši); *neck* yanni -nik *(yaq-)-neq^{w} (reconstruction based on other languages and the supposition that the Zapotec is *length-neck*); *eat* -o iet *wo; *die* -tti -ndeow *nte; *give* -uti iic *ote/oce; *say* -pi -piing *pi; *earth* yu iit *yo/yeyo-t; *mountain* tani tiik *ta/te(-yoq); *full* ča? čipiow *ca/co; *name* la nit *la/nu.

9.3. The least divergence between Manguean and Tlappanecan was found in the comparison of Mangue and Subtiaba (vocabularies from Lehmann 1920), with 25 apparent cognates among 86 diagnostic pairs (29%, equivalent to 41 minimum centuries). Since the comparison is fairly difficult and the phonology has not yet been worked out,[4] it may be helpful to cite parallel forms from the other languages of each family. We therefore give in parentheses the Chiapanec (from Lehmann 1920) and the Tlappanec (from Radin 1933) forms when they show signs of cognacy, the order being: *English* (Chiapanec) Mangue Subtiaba (Tlappanec) *protoform.

I (se-ho) sa-ho ik-u (ikuN?) *-ho; *thou* simuseta ik-a (ik-aN?) *-(t)a; *we* (sihmim-u) semehm-o heče-lu (ika-lu) *i(l)u; *not* (ampi) aku a- *a-; *big* (na-ripe) nema -mba (mba) *(na-)-repa/nepa/npa; *small* (čunti) čote čiči *ce/co-; *woman* (n-ahwi) n-ahwi-yomo rabagu (a?gu) *a?wo; *fish* (nan-kasi) pusuket eki igi? *kati; *bird* (ñuri) nuri/-yuri ñu?u (ñu?u) *n-yori; *dog* (numpi) ñumpi ruwa *numa/ruma; *louse* (nawe) ñuwe yaha (yaha?) *(n-)ya-; *tree* (na?a) ña isi (išši) *ya- (cf. Zapotec-Mixtec); *head* (-čima) -čima eču (eču) *ce/co; *eye* (nate) nahti situ (idu) *na-qete/qeto; *mouth* (ntu) ñun-su daw (rawN) *n-row (cf. Zapotec ru?wa etc.); *foot* (-laku) -rahu nahku (naku) *rahqhu/nahqu; *breast* (nčitu) nkusu dudu (ča?du) *to; *eat* nasu su *so; *sleep* (pi) payakoya -gapu *pe/pa/po; *die* -gañu -ganu (-ukaño?) *qani-yo; *come* (la) -na -?a (neke) *na/ne; *fire* (ni-w) na-hu agu *hawo; *ash* (ni-tu) ni-su idi (idi?) *to/te; *white* (-tili-) -dru- tiču *tol/tel; *black* (-tuha-) -so- -dagi- *to/ta.

The similarity of Macro Manguean with Macro Chibchan, even at the point of greatest similarity that we apparently find between Mangue and Misquito, is of a lower order. This is seen both in the low number of possible cognates and in the small size of the comparable forms. To strengthen the comparisons on the side of Misquito (from Heath and Marx 1953) we give in parentheses forms from some of its closest congeners in Macro Chibchan, namely Sumo, Ulua, Taguasca, Cacaopera, Paya, identified by the

[4] Some help was obtained from Sapir 1925, but this work deals with the relationship of Subtiaba to the 'Hokan' languages and not to Manguean.

initial letters of the names. There are 17 possible cognates in 90 diagnostic pairs, as follows: *not* (aku) ampi api (p. aka) *a-; *small* (čote) čunti sirpi *co/ce; *man* (nu-hwa) nu-wa waykna (u. yawan, c. yawira *person*) *yawa/wa(ya); *person* nti-pahu balna/upla (p. taswa-ba) *pal (cf. Zapotec-Huave *ni-pela-ni); *bird* (nuri) ñuri/-yori tnawira *yori/wira; *seed* na-mumu ma (s. minik) *ma/me; *bark* and *skin* (-suwa) -tua taya (s-u. u-tak, p. asuka) *ta(wa/ya); *breast* (-su) -čitu tiala (s. ta-, c. su-) *to/te/ta; *drink* a-ri dia (s. di, p. tip) *te; *see* kupe-ñu kayka *ko/ka; *sleep* (payakopi) pi yapa- (p. up) *pe/pa; *come* (-na) la bala- (c. ayra) *na/la/ra; *lie* (paputi) prawa- (p. aprispa) *pot/por/pra; *sun* (num-pu) mapiyu yu (s-u-t. ma *sun*, p. yawi *moon*) *yo (cf. Mixtec, Zapotec etc. for *fire*, *sun*, *moon*; the first element in Chiapanec and that of Sumu etc. may be an element meaning *ball*); *new* -rimpa raya *re/ro; *good* ankame yam-ni (s. dam-ne) *(nan-)yam.

9.4. Between Mazatec of Huautla and Chinantec of Ojitlan, we find 19 possible cognates in 99 diagnostic pairs. Between Ojitlan and Chiapanec, there are 16 in 90 pairs. The lists show in order Mazatec, Chinantec, Chiapanec, which are abbreviated M, N, P in the identification of cognacy.

1. *I* ʔaN hn-a sime *-a MN; *thou* hi ʔi simuʔ *hi/ʔi MN; *we* ña hnaʔ sihmimu *-a(ʔ) MN; *this* he-wi la —; *that* he-we hna sune *sona/sone NP; *who* ʔya ʔiN —; *what* hme-ni ʔe —; *not* li/hiN ʔa ampi *ʔa- NP; *all* nkayi-he lahi tari; *many* nkhio ʔlaN aka *qhe/qha/qho MP.

11. *one* hnko keN tiče *hen-qo/qe MN; *two* hao toN hu-mihi *haw MP; *big* he hwoʔ naripe *qhe(wo) MN; *long* nto kʷo —; *small* ʔnti piʔmiʔ čunti *-nti MP; *woman* čhoN ca-mi n-ahwi; *man* šʔiN ca-ñi nu-wa; *person* čota ca nti-pahu; *fish* hti haʔtaNʔ nan-kasi; *bird* ni-se taN ñuri.

21. *dog* nia ci num-pi; *louse* na-ti ʔliʔ na-we; *tree* ya ʔma naʔa (Mangue ña) *ya MP; *seed* na-ši mi-ci na-mumu *mu NP; *leaf* ška mo ni-ma *mo/ma NP; *root* hama hlo nampa-tihmi; *bark* ça̱o-le kʷoʔ -tua *tow/ça̱w MP; *skin* ça̱o nalo-ʔi- -tua *tow/ça̱w MP; *flesh* yau hwiŋo nam-pui; *blood* nhiN hmiyiN ni-ho.

31. *bone* ni-nta namo n-kuyi; *grease* šine no — *ne/no MN; *egg* čhau mi-hli m-puwa; *horn* nča čihwi nam-puwa *n-ša/še MN; *tail* nti'ciN čikoN n-kuki; *feather* ncha mihaN lari; *hair* ncha hñi nim-pi; *head* hko či- -čima *či NP; *ear* šoño rikʷa- ni-ha; *eye* škoN miñinate.

41. *nose* ntithoN čiʔyaʔ- n-čiñu *(n-)ši- MNP; *mouth* ću̱a ʔo- n-tu *roʔwa MNP; *tooth* ni-ʔño miha- ni-hi *qha/qhe NP; *tongue* ni-ʔheN si m-pelu; *claw* ñonko/yanko kʷoʔuʔhaʔ mantuku; *foot* ncoko ti- -laku *raqo/laqo MP; *knee* ško čihni- -pami; *hand* ncha kʷo- ni-la; *belly* coa tuʔ- -tak/čilem; *neck* yasiN lu- n-kuri.

51. *breast* čiki čitiʔ- n-čitu *ši MNP; *heart* nima mi-ci nam-pue; *liver* čohnka mi-soʔwaʔ m-pani-taku; *drink* ʔwi ʔuʔ a-ri *ʔe̱wiʔ MN; *eat* khine kuʔ ta- *qhe/qho MN; *see* — hi kupe-ñu; *hear* nc̱oe ni pu-ñu; *know* we maʔ —; *sleep* -hnawhe kʷiN pi.

61. *die* mʔeN hoN hwi *qhewi/qhewo-n NP; *kill* sike hiNʔ pa-hwi *qhewi/qhewu-n NP; *swim* coʔwahiN ki —; *fly* whitheN ʔiN—; *walk* wʔamheN n̨i—; *come* nçoa hya la; *lie* -hna rikyaN paputi; *sit* hna kʷa čina; *stand* -seNNto siNʔ lutumu *seni MN; *give* chua kʷo wa *(ce)wa MP.

71. *say* co hwaʔ ku; *sun* ʔcyi ʔye mapiyu *-ye/yo MNP; *moon* sa siʔ yuhu *sa/so MN; *star* ni-ño ni na-hwiti *no/ne MN; *water* na-nta hmi nim-pu; *rain* hci hmi nam-pahamu *qhamo NP; *stone* lau koN nuka *qo/qa NP; *sand* comi si lunta *co/cu MN; *earth* ʔnte kʷaʔ nam-pula/na-kopu *qʷa NP; *cloud* yohwi hni na-mari.

81. *smoke* ni-ʔnti hmiñi nim-pi; *fire* lʔi yi ni-w; *ash* čau- hwa ni-tu *taw/caw MP; *burn* ti ko pusi; *path* ntia hwi ni-la; *mountain* ni-nto maʔ na-manti *ma NP; *red* ni yiN -tui-; *green* šaša riʔ -tipa; *yellow* sine ne -tiku *sene MN; *white* cua te -tili- *te NP.

91. *black* hma laʔ -tuha; *night* ni-the ʔwo ñuhi; *hot* so či -tuh; *cold* nćaN kʷi -la-; *full* kiče čikaN haka- *še MN; *new* čoce ʔmiN -rimpa; *good* nta či angame; *round* thikhi

nahaN alusi-; *dry* ši kiN -puku-; *name* hu?aiN la?isiN nu-wi.

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NATICK CONSONANTS IN REFERENCE TO PROTO-CENTRAL ALGONQUIAN: I[1]

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0. Introduction
1. Normalization of Natick material
2.1. List of cognates, A-L

0. Within the Central-Eastern group of Algonquian languages, Natick (or Massachusetts) is classified as an Eastern (New England Type) language.[2] There are extant in the literature systematic investigations of the Central languages and the nature of the relationships that exist between them. However, the same is not true for the Eastern languages. In fact, upon examination of the grouping of the Eastern languages, it is evident that this is largely a geographical classification and not one based on carefully worked out linguistic evidence. The material available for the Eastern languages is not in a form which lends itself easily to analysis or comparison. The phonological and grammatical structures are obscured by bad recordings, and there is nothing in the way of comparative material which is as advanced as Bloomfield's sketch of Algonquian or Hockett's work on Central Algonquian vocabulary.[3]

The primary sources of Natick material are a translation of the Bible and a primer written by John Eliot in the 17th century and a vocabulary of the Natick language compiled by Josiah Cotton in the early part of the 18th century. Trumbull's Natick dic-

[1] This paper is the first of two dealing with the consonant correspondences of Natick with Proto-Central Algonquian. The second paper, which will appear later, contains a further listing of cognate sets and discussion of the correspondences.

This study was first begun under the direction of Mary R. Haas in her seminar in American Indian Linguistics at the University of California, Berkeley. My thanks are due Professor Haas for helpful counsel and for making her Algonquian material available to me.

[2] Bloomfield (Algonquian, in Harry Hoijer and others, Linguistic Structures of Native America VFPA 6.85-129, 1946) comments that his listing of the Algonquian languages follows, for the most part, that of Michelson's (cf. Truman Michelson, Preliminary Report on the Linguistic Classification of Algonquian Tribes, BAE-AR 28.221-290, 1912). However, Michelson classified Natick as a Central language and based this classification on a study of the personal terminations of the verb in the present tense of the indicative and subjunctive modes and on certain phonological features—among them, the lack of the characteristic consonant clusters of the Eastern languages and the lack of an /l/ in Natick. It is assumed that Bloomfield's phonological evidence for considering Natick an Eastern language is mainly that Natick maintains a distinction between PA *θk and *xk—a distinction which the Central languages do not keep (cf. Frank T. Siebert, Jr., Certain Proto-Algonquian Clusters, Lg. 17.298–303 [1941]). In his discussion of PCA *θ and *l he notes that the New England languages have /l/ for both, thus implying that Natick also has an /l/. Pre-Natick may have had an /l/ and an /n/ but, if so, these two phonemes had coalesced by the time of the first transcriptions of Natick.

[3] The Proto-Central Algonquian reconstructions cited herein are from the following sources and marked accordingly: Leonard Bloomfield (Bl), (a) op. cit., (b) On the Sound System of Central Algonquian, Lg. 1.130-156 (1925), (c) Proto-Algonquian -i·t- 'Fellow', Lg. 17.292–297 (1941); the Rev. James A. Geary (G), (a) Proto-Algonquian *çk: Further examples, Lg. 17.304-310 (1941), (b) Algonquian nasaump and napōpi: French Loanwords?, Lg. 21.40-45 (1945); Mary R. Haas (Ha), (a) Algonkian-Ritwan: The End of a Controversy, IJAL 24.159-173 (1958), (b) A New Linguistic Relationship in North America: Algonkian and the Gulf Languages, SJA 14.159-173 (1958), (c) new reconstructions as yet unpublished; Charles F. Hockett (H), Central Algonquian Vocabulary: Stems in /k-/, IJAL 23.247-268 (1957); Truman Michelson (M), (a) Notes on Algonquian Languages, IJAL 1.50-57 (1917), (b) Phonetic Shifts in Algonquian Languages, IJAL 8.131-171 (1935); Frank T. Siebert, Jr. (S), op. cit.

tionary, published in 1903, six years after his death, and the source of the Natick corpus for this study,[4] is based on the work of Eliot and Cotton—work which was done in the traditional English orthography of the times. In spite of the obvious handicaps, Trumbull's dictionary is of great value because the collection of enough material under most items makes analysis possible.

1. The purpose of this paper is to present the consonant correspondences between Proto - Central Algonquian (PCA) and Natick (Nt). The vowel correspondences and a comparison of the grammatical structure will be left until a later date. It is possible to get a fairly clear picture of the consonant inventory of Nt, but the vowel qualities and quantities are obscured by the recordings. Ideally, in situations such as this, reconstitution[5] should be attempted since a consistent orthographic rendition is much easier to work with than the original. Doubtless, a reasonably adequate job of reconstitution could be done with the corpus available; however, such a rigorous approach is not attempted here. Instead, a normalized notation, which might be considered one of the preliminary steps in reconstitution, is employed. This notational system is based on assumptions about Nt phonology drawn from comparisons of the recordings and the few remarks about the orthography found in the preface to Cotton's Vocabulary of the Massachusetts (or Natick) Language.[6] Variations in recordings of the same items lead to the assumption that doubled consonants represent either fortis pronunciation or shortness of the preceding vowel; therefore, such recordings are normalized as single consonants. A sequence normalized as /kw/[7] also occurs with similar variations. A list of the normalizations according to this notational system follows;[8] the items enclosed in parentheses represent the original orthography: /p/ (p, bp, b); /t/ (t, dt, d); /č/ (ch, tch, dch, tj); /k/ (k, gk, g); /kw/ (q, qu, kq, gq); /m/ (m, m̀); /n/ (n, ǹ); /s/ (s); /š/ (sh);[9] /h/ (h).

[4] Trumbull James Hammond, Natick Dictionary, BAE-B25 (1903). Other languages from which examples are quoted are abbreviated and marked according to source as follows:

Ab.T: Abnaki, cited from quotations in Trumbull, Ch: Cheyenne, Truman Michelson, Phonetic Shifts, C: Cree, Bloomfield; On the Sound System of Central Algonquian, C.L: Cree, Le Rév. Père Alb. Lacombe; Dictionnaire de la langue des Cris, Montreal (1874), C.W: Cree, E. A. Watkins; A Dictionary of the Cree Language, Toronto (1938), Dl: Delaware, Charles F. Vogelin; Delaware, an Eastern Algonquian Language, in Harry Hoijer and others, VFPA 6.130-157 (1946), K.Ha: Kickapoo, Mary R. Haas; unpublished word list, F: Fox, Leonard Bloomfield; Algonquian, F.H: Fox, Hockett; op. cit., M: Menominee, Bloomfield; Algonquian, Mi: Miami, Charles F. Vogelin; Shawnee Stems and the Jacob P. Dunn Miami Dictionary, Indiana, Historical Society, Prehistory Research Series 1.63-108; 135-167; 289-341; 345-406; 409-478(1939), Mc: Micmac, S. T. Rand; Dictionary of the Language of the Micmac Indians, Halifax, N.S. (1888), Nr: Narragansett, cited from quotations in Trumbull, O: Ojibwa, Bloomfield; Algonquian, eO: Eastern Ojibwa, Leonard Bloomfield; Eastern Ojibwa: Grammatical Sketch, Texts and Word List, Univ. of Michigan Press (1957), O.Ba: Ojibwa, R. R. Bishop Baraga; A Dictionary of the Otchipwe Language Explained in English; Part I: English-Otchipwe; Part II: Otchipwe-English (1878), Pn.Ha: Penobscot, Mary R. Haas; unpublished field notes, Pw.T: Powhatan, from quotations in Trumbull, Sh: Shawnee, Vogelin; Shawnee Stems, Qu.T: Quiripiac, from quotations in Trumbull.

[5] The term "reconstitution" is used here as applied by Sylvia Broadbent (Rumsen I: Methods of Reconstitution, IJAL 23.275-280, 1957).

[6] Cotton, Josiah, Vocabulary of the Massachusetts (or Natick) Indian Language, Cambridge, 1829 (ed. by John Pickering). The editor, assuming that Cotton's orthography was the same as that used by Eliot, has collected all of Eliot's observations on the subject of orthography and pronunciation in the preface (or advertisement) of this edition, cf. pp. 4–7.

[7] Although the normalizations occur between diagonals, they are not to be considered phonemic sequences.

[8] This list is based on the Natick forms which enter into the cognate sets presented in Sec. **2.**

[9] It is possible that /s/ and /š/ were the same phoneme but, since my observations so far do not yield positive enough evidence for making such an assumption, the two are kept distinct; where they

Since it is difficult to determine whether the sequence of (h) plus consonant represents a consonant preceded by aspiration or whether such a representation is used to mark the quality or quantity of the preceding vowel, this sequence is normalized as /ʰC/.[10] When the recordings (y) and (w) appear they are normalized as such; however, since the transcriptions make interpretations of the semi-vowels, as well as the vowels,[11] difficult, a detailed treatment of the semi-vowels is not presented here.

Notwithstanding the interpretation difficulties mentioned above, it often turns out that comparison with PCA forms, together with the other Nt forms in a paradigm, is helpful in indicating morpheme boundaries; once the morpheme boundaries are identified, it becomes possible to make assumptions about the phonemic constituents which make up a given morpheme.

2.1. The cognate sets are listed below in alphabetical order by English gloss. Whenever possible, polymorphemic forms have been compared.

Until the evidence from the Western languages is properly brought into the Algonquian historical picture, there is no Proto-Algonquian. Therefore, forms which have appeared in the literature as PA are treated here as either PCA or Proto-Central Eastern Algonquian (PCEA) and the PCEA reconstructions are converted into their PCA equivalents. In some cases the reconstructions will be identical and in others they will differ. The difference, as far as this paper is concerned, is primarily a matter of the symbolization of Bloomfield's *xk, *θk, and *xp. As Hockett has pointed out, there is no need, in PCA, to distinguish between *xk and *θk since the differentiation between the two is based on Eastern evidence. Thus he writes them both as *θk (: PCEA *xk, *θk). However, he operates with a *θp as well as an *xp. His *θp is a PCA cluster like *xp except that it yields Fox /p/ instead of /hp/.[12] There is evidence

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alternate with each other in variant representations of the same forms, the alternation is represented by /ˢ|š/.

[10] /ʰC/ is used even when different recordings of the same items have (hC) varying with (C).

[11] As would be expected, the vowels present many problems. For the reader's convenience, although the vowels will not be discussed in this paper, the normalizations I am operating with at present are listed below. The comma is used to distinguish variant recordings of what is obviously the same morpheme occurring in various morphological environments. The left bracket marks the orthographic environment before which certain variant recordings occur. ~ distinguishes variant recordings of the same form.

These normalizations are tentative, based on the frequency of occurrence of recordings of the same items, ability to identify morphemes, and on intuitive guesses about the corpus as a whole. No attempt has been made to normalize vowel length. Although Eliot speaks of a nasal accent (ˆ) occurring with (o) and (a), I have not normalized any nasalized vowels, the possibility of which should be kept in mind along with that of tonal accent and voiceless vowels. The choice of vowel symbols is a mnemonic device indicating possible phonemic and phonetic areas. /v/ is used in those cases in which a normalization could not be decided upon. In any case, whenever a normalized form is cited it is accompanied by the recordings upon which it is based:

/i/: (u ~ i; -e; -e-; ee; i ~ e [hC; i); /e/: (e ~ ei, é; é[y); /ɛ/: (a; â ~ au); /a/: (o ~ a; o; á ~ ó; a ~ au ~ o; o[hC ~ u; á ~ â ~ au); /ˢ|o/: (ó ~ o; aü ~ ou); /ə/: (u ~ a[hC ~ a; u ~ â ~ aá; u ~ é; u ~ e; u; û ~ u; u ~ a); /u/: (oo; -u); /o/: (o ~ oo; o ~ au).

[12] Cf. Hockett; ibid., item 69 (p. 260) *keθpakya·wi *it is thick*: F kepakya·wi, C kispaka·w, sO keppaka·makat. He further compares M kehpa·kan, Sh kpakinwi. The M form shows the proper reflex for PCA *xp. One expects Sh /ʔp/ for PCA *xp and so the Shawnee form, at first glance, seems to support the reconstruction of *θp. However, Miller (Wick R. Miller, An Outline of Shawnee Historical Phonology, IJAL 25.16-21, 1959) indicates that when a voiceless consonant precedes a short vowel + cluster, the vowel is syncopated and that when, through syncope, a cluster of the type /ʔC/ comes to stand after a voiceless consonant, /ʔ/ is lost. Therefore, the Shawnee sequence /kpak. . ./ (. . . identifies the preceding or following segment as the one under examination and does not imply segmentation) would be Pre-

in Nt for a PCEA cluster which it would be desirable to symbolize by *θp since the reflexes parallel those of PCEA *θk. Therefore, I am substituting *Xp for Hockett's PCA *θp and reserving *θp (: PCEA *xp, *θp) for Bloomfield and Hockett's *xp. The following chart will clarify the situation:[13]

CHART I

Bloomfield	Hockett	PCA	PCEA
*xk, *θk	*θk	*θk	*xk, *θk
*xp	*xp	*θp	*xp, *θp
	*θp	*Xp	

In the listing of cognates, The PCA reconstructions are cited first. Occasionally "as if" PCA reconstructions (i.e. reconstructions which do not appear in the existing corpus of reconstructions but which are entirely plausible on the basis of what is known about PCA morphology) are compared with Nt forms. Whenever such a comparison is made, the "as if" reconstruction is marked with a † and the nearest paradigmatic form which actually is in the corpus is cited alongside it, if possible, or supporting evidence from one or more of the Central languages is quoted.

Besides the symbolization adjustments mentioned above, all the forms quoted have been converted into Bloomfield's system with the substitution of a raised dot for vowel length, *ʔ for *q, *c for *č, and *sk for *çk.

The Natick forms are given in their normalized versions with the recordings, as they appear in Trumbull's dictionary, shown in parentheses.

ABANDON: HE ---S HIM. PCA †nakaθe·wa, cp. *nenakaθa·wa (M) *I abandon him*; Nt /nəkanaw/ (nukkonau *he abandons him*; cf. nukkonónat *abandon*). Cp. Sh ninakala *I left him home*, Mi näkalaka *I leave him.*

ABOVE, HIGH. PCA *ešp- *high*, *ešpemenki *up, above* (B1); Nt /əšp-/ (ushpunum *he holds/lifts it up*; cf. ahshpohtag, âshpohtag *when it is high, when it reaches up to*).

AGAIN. PCA *θa·pi- (G); Nt: /nampi/ (nompe *again, instead of*). Cp. Sh nilaapilawi *I do so over and over*, nilaapima *I tell him over and over.*

ALONG IN SPACE OR TIME. PCA *pem- (B1); Nt /pəmi/ (pame, paáme defective verb used separately as auxiliary or in composition with other verbs to denote *progress, continuance* or *duration of action*; cf. pummunau *it flies through the air*, pámunont *when he flies*).

ARM: SOMEONE'S ---. PCA *meθpetoni, PCEA *mexpetoni (S); Nt /məʰpit, məʰpitvneš/ (muhpit, méhpit *arm*, muhpittenash *arms*; cf. wuhpit *his arm*).

ARMPIT: SOMEONE'S ---. PCA, *meθenkwi (G); Nt /mənəkwi/ (menukque; cf. agwe menukwit *under the armpit*).

AUTUMN. See FREEZE.

BACK: MY ---. PCA *neθpeθkwani, PCEA *nexpeθkwani (S); Nt /nəpisk/ (nuppisk, nuppusk; cf. uppisquanit *on/at his back*, uppisk *his back*).

BAD. PCA *mat-, *mači- (B1); Nt /mɛt, mɛči/ (matta, mat *adverb of negation* matche *bad*).

BARK (*n.*). PCA, PCEA *walake·θkwa (S); Nt /wənnetvsk/ (wunnadteask). This set is questionable because the correspondence between *k and Nt /t/ cannot be accounted for. Cp. Sh holakee-(plus -l-, -ʔkwi) *boat, bark*; holakeʔkwi, holakeʔko *pieces of bark.*

BEAR (*n.*). PCA, PCEA *maθkw-a (S); Nt /maˢ|škw/ (mosq, masq, mashq).

Shawnee */kVʔpak. . ./. The Natick form which fits with this set also points to *xp (see **2.2** THICK). In view of these facts, one might consider the Fox form to represent a phenomenon within Fox which is as yet unexplained. However, see item 108 (p. 266) for another example of *θp.

[13] Miller; op. cit., has also made some changes involving these clusters (cf. fn. 4). For the purposes of this paper, I prefer to adhere to the traditional symbolization as nearly as possible.

BEE. PCA *a·mow-a (Ha); Nt /. . . amus, . . . amwəs/ (aóhkeomoo[s] *hornet*, aóhkéaumoous *bee*, ohkeommoos-og *bees*). The /-s(-)/ may be the diminutive suffix.[14]

BEND: HE ---S IT. PCA *wa·kenamwa (M); Nt /wᵃ|onkinəm/ (wónkinnum, wonkunum; cf. woonki *crooked*). Cp. Nr wâuki *crooked*;[15] Sh waaky- *crooked, bent outward*.

BERRY. See SEED.

BETWEEN. PCA *θa?θa·wa·wi (M) *it is between*; Nt /nešawi/ (nashaue, nashāue; cf. nanashaue nenawun kah ken *between us and you*). Cp. Sh lalakwi *in between*, Mi nalakwä *between* which look related but are not directly cognate.

BIG (1). PCA *me?ši (B1) *me?šye·wi (B1) *it is big*; Nt /miᵉ|ši, mis(i)yiw/ (missi, mishe, misheu, missyeu *it is great*).

BIG (2). PCA *ke?t- (H) *big, much, old*, *ke?ci (B1) *big, much (part.)*, *ke·hte·- (H)[16] *old*; Nt/keʰt-, keʰči/ (keht-, keiht- *in compound words 'chief, greatest', as a prefix to nouns inan. corresponding to* kehche- *before nouns an.*, kéche *it is superior by reason of age, old, ancient*). See also OLD PERSON, SEA, THUMB, TOE (BIG).

BITCH. PCA, PCEA *eθkwe·?θemwa (S); PCA *-a?θemw (B1) *dog (deverbal)*, *eθkwe·wa *woman*; Nt /skwašim, skwašimwi/ (squáshim, squóshim *a female quadruped*, squáshimwe *adj.*). Cp. DOG below with *-a?θemw as an example of the C, ?C alternation which occurs between first position and second position stems in PCA.

BITE: HE ---S HIM. PCA *sakipwe·wa, *sak- *seize hold*, *-pw- *by mouth* (Bl); Nt /sakipwaw/ (sogkepooau, sogkepwau). See also CATCH HOLD OF.

BITTER, PAIN. PCA *wi·?sakesiwa (B1) *he is in pain* Nt /wisakan/ (wesogkon *bitter*, cf. weesogkinooonk *bitterness*), /wiswi/ (weeswe *the gall*, cf. nooweeswe *my gall*). Cp. Sh wi?θakanwi *it is bitter*, wiiθwi *his gall bladder*. See also YELLOW.

BODY. PCA *wi·yawi (B1) *his body* (Sh wiiyawi *his body*, wiyaw?θi *meat*); Nt /uwiyaws/ (ooweyaus *his flesh*, cf. weyaus *flesh*, kooweyaus *thy flesh*).

BONE: HIS ---. PCA, PCEA *waθkani, *waθkanali (S) *his bones*; Nt /wəskaŋ, wəskaneš/ (wuskon, wuskonash, cf. muskon *bone*, muskonash).

BRAIN. PCA *-temp-i (M), *-ntep-i (M); Nt /-təp-, -antəp-/ (waantam wuttup *a wise brain*, metúppĕash *brains*, -oñtup *head in compound words*, cf. wompóntupont *one having a white head*.) Cp Nr wuttip *the* (*his*) *brain*.

BREAK (1). PCA *ša·kw- (?) (Ha); Nt /saʰkw . . ./ (sohqunnum, sukqunnum *he breaks it in pieces, as bread*, sohquettahham, sukquehtham *he breaks in pieces an inan. obj. pertaining to or for another*).

BREAK (2). PCA *po·θkw- (B1), PCEA *po·xkw-; Nt /poʰkw-/ (pohqunnum *he breaks it in two*, poohquĭsshau *it is broken*).

BREAST. PCA *meθen-i (M) *someone's breast*; Nt /mənin . . ./ (meninnunk *milk* [in title of Indian trans. by Rawson of Cotton's Milk for Babes'], meninnunnúe *of milk, milky*). Cp. Nr munnúnnug (*woman's*) *milk*, Ab.T mèrenák8s *du lait*, Sh mel-, meleny- *milk*.

BREATHE: HE ---S. PCA *le·hle·wa (B1); Nt /neʰnešaw/ (nahnâshaü, cf. nahnashānat *to breathe, freq. of* nashaü, nanashont, nahnashant *suppositive*). PCA *hl is being compared to Nt /š/ as there are numerous examples of PCA*. . . e·wa (also *. . . a·wa) corresponding to a sequence in Nt which is recorded as (. . . au, . . . aü).

BRING: HE ---S IT. PCA *pye·ta·wa (B1); Nt /patow/ (patou *he brings*, paudtaü *he brings it, he cometh with*).

BURST. PCA *pa·šk- (B1); Nt /pɛˢ | šk-/ (pashksheau *it bursts asunder*, paskuhkom, pashkuhkom *he bursts it asunder*.

[14] For occurrence of this suffix in Penobscot and Powhatan see Siebert; op. cit., fn. 7, p. 300.

[15] Narragansett, a language once spoken in Rhode Island, is considered the Eastern language most closely related to Natick. It was originally recorded by Roger Williams in the 17th century.

[16] Hockett; ibid, considers this particle as a dubious formation from the root.

BY HAND. PCA *-en (B1); Nt /ɛnvn/ (annun, annún, annin *he takes hold and holds an an. obj., he puts hands on*). See also LIFT UP.

CATCH HOLD OF: HE ---ES ---IT. PCA †sakinamwa; /sakənəm/ (sogkunum). See BITE.

CHILD. PCA *neni·cya·nehsa (B1) *my child*; Nt /ničɛn/ (wunneechan *his child*, neechanog *children*, cf. neechan *he/she issues from or is given birth*, neechau *she gives birth to a child, is delivered, is in labor*).

CLOSED, BLOCKED. PCA *kepahamwa (H) *he closes it with something*; Nt /kəpahɛm/ (kuppohham *he shuts, stops, closes it*).

COME: HE ---S. PCA *pye·wa (B1); Nt /piyaw/ (pēyau *he comes hither*).

COME (PROCEED) FROM. PCA *wenči·wa (B1) *he comes from there*; Nt /wəč(iy)iw/ (wutcheu, wadchiyeu *he proceeds/originates from/in*, cf. wutjishau *he proceeds/originates from/in*, ontseu *he proceeds from, is the offspring of*).

DAUGHTER. PCA *-ta·na (M); Nt /-tan-/ (wut-taun-oh *his daughter*, wut-taun-in, wuttonin *the daughter of anyone*, wuttanog, wuttaunog *pl.*).

DAY. PCA *ki·šekatwi (B1); Nt /kisəkat, kisək/ (kesukod *daytime*, kĕsuk *sun, sky, day, daylight*).

DEER. PCA *atehkw-a (B1) *caribou*; Nt /vʰtəʰkw-/ (ahtuk, ahtuhq, attūk *deer*; ahtuhquog, adtunkquog *pl.*).

DIE: HE ---S. PCA *nepwa (B1); Nt /nəpu/ (nuppoo, nup *he dieth or is dead*).

DIG. PCA *wa·l- (Ha); Nt /won-/ (wónogq *hole*, wónteau *he digs a hole*). Cp. Sh waal?ke *he dug a hole*, Mi wali *hole, cave*.

DIP OUT/UP: HE ---S IT. PCA *kwa·pahamwa (H); Nt /kwamphɛm/ (quompham nippe *he dips up water*, quoṁpham *he dips it up*; cf. quompatásh *2nd sg. imperative*).

DISH. PCA *wela·kani (B1); Nt /wənank, wənankenit/ (wunnonk *dish, tray*, wunnonganit *in the dish*).

DOG. PCA *aθemwa (B1); Nt /ɛnəm, ɛnəmwak/ (anùm *dog*, anumwog *pl.*). Trumbull (p. 246-7) has the following comment: "Eliot in noticing the changes which some of the consonants undergo in passing from one dialect to another instances this word [dog], as Roger Williams had done before, as pronounced by the Indians of Massachusetts, anùm, . . .; by the Nipmucks, alùm; by the Northern (and the Quinnipiac) Indians, arúm, and . . ., by the Narragansetts ayím. "The Delawares say allum, the Algonkins alim, . . . Abenakis allomoos. . . ." ". Cp. also Mc ulumooch. n(: PCA *θ) ~ y in Narragansett and ~l in Algonkin.[17]

DUST. PCA *penkw-i (G); Nt /pəkwi/ (pukquee *dust, ashes*).

EAR: HIS ---. PCA *wehta·waka·y-i (M); Nt /weʰtawak/ (wehtauog; cf. méhtáuogqwash *ears*).

EAT: HE ---S IT. PCA *mi·čiwa (B1); Nt /miču/ (meechu, meech *he eats that which is inanimate*). PCA †mi·tesiwaki *they eat (an. intrans.)*; Nt /mitswak/ (meetsuog *they eat, an. intrans.*). Cp. Sh miiči *eating (with inan. goal only)*, nimeteelemope *we want to eat something special*; D1 nəmí·tsi *I am eating*, mi·t- *eat (inanimate goal only)*.

EGG. PCA *wa·w-i (M), †wa·wali *eggs*; Nt /wow, wowaneš/ (wôu, wóóu *egg*, wônash *eggs*). Cp. Sh howaawi, howaawali *egg-s*.

EIGHT. PCA *ne?ša·šika (B1); Nt /šwasək/ or /nišwa/ (shwosuk [or] nishwô, shwosuk tahshe).

ENOUGH. PCA *te·p- (Ha); Nt /tɛpi/ (tâpi, taupi *it is sufficient*). Cp. Sh teepi *enough* (used as a particle), Mi täpatwika *enough*.

ENTER. PCA *pi·ntwike·wa (B1) *he enters a dwelling*; Nt /pitəkaw/ (pētukau *he goes in/into*).

EXCREMENT (?) PCA *mo·w- (B1) *soiled*;

[17] Geary, the Rev. James A., The Language of the Carolina Algonkian Tribes; The Roanoke Voyages 1584–90, Vol. II, Series II, Vol. CV (1955), Hakluyt Society, London, p. 876.

Nt /mwi, moyiw/ (mooee, moyeu, mooi *dung*, mooeu, mooi *it is black*). Cp. Nr mówi *it is black*.

EXHAUST. PCA *me·ʔci (B1) *to exhaustion*; Nt /mvʰčeyiw/ (méhchéëu, méhchéyeu *she is barren*). Cp. Sh meʔt- *completely, finishing wearing out*, meʔčilawi *he did so completely*, homeʔteelemaali *she created him*.

EYE: MY ---. PCA *neški·nšekwi (B1); Nt /nəskisək/ (nuskesuk).

FATHER. PCA *o·hθali (B1) *his father*; Nt /uš, nušən/ (ooshe, oosh, ooshoh *father*, nooshun *our father*).

FEAR. PCA *kwe·ʔθe·wa (Ha) *he fears him*; Nt /kwəšaw/ (qushaü *he fears him*). PCA *koʔtamwa (H) *he fears it*; Nt /kwiʰtɛm/ (quehtam, quittam *he fears it*).

FEET: SOMEONE'S ---. PCA †mesitali, *nesitali (B1) *my feet*; Nt /məsiteš, nəsit/ (musseettash *feet*, nusseet *my foot*).

FIGHT. PCA *mi·ka·θe·wa (B1) *he fights him*; Nt /mikanaw/ (mekonaü *he fights with him*).

FIND: HE ---S IT. PCA *meθkamwa (B1); Nt /miˢ|škam/ (miskom, mishkom *he happens upon, finds it*).

FINGER, HAND. PCA *-θenčye·- (B1); Nt /-nəčvk/ (m'nutcheg, menutcheg *hand*).

FIRE. PCA *eškote·w-i (B1); Nt /neškwət-/ (nashquttag *a violent destructive fire*, nashqutta *the devouring element*, nashquttin *tempest*). Nt /n-/ is unaccounted for.

FISH. PCA *name·ʔsa (B1); Nt /nɛmvʰs/ (namohs, namas). Cp. Pn.Ha nàmehs *fish*.

FIVE. PCA *pale·neθkwi (< **pale·neθki-wi) (S); Nt /...pɛnv/ (napanna tahshe). Perhaps the initial (na...) of the Nt form is connected with the initial nasal that occurs in both PCA and Nt in the sets for TWO and THREE and in PCA only in the set for FOUR.

FLEA. PCA *pepikw-a (Ha); Nt /pɛpikw/ (papekq). Cp. Mi papikwa(ki) *flea(s)*.

FLY. PCA *ešpiʔle·wa (M) *he, she flies high*; Nt /əšpəšaw/ (ushpushau *he flies up, soars*). PCA *pemiʔle·wa (B1) *he flies along*; Nt /pəmənaw/ (pummunau *it* [*bird*] *flies, goes swiftly through the air*). The Nt forms present a problem since the expected correspondence with PCA *ʔl is Nt /š/, paralleling the correspondence of /š/ with PCA *hθ, *ʔθ, *hl. Without adequate information about the grammatical structure and the morphophonemics of Nt it is impossible to determine whether this problem is to be explained by an alternation within Nt or whether the Nt forms reflect a Proto-Algonquian feature (stem alternation (?); see DOG, BITCH) which the PCA reconstructions do not. Cp. also C.W ispiyāw *he, she flies high* and C.B1 pimihāw *he flies along* which probably reflect a development occurring purely within Cree.

FOAM. PCA *piˑʔteˑw- (Ha); Nt /peʰtaw/ (pehteau *it foams*, pehtom *scum*).

FOREHEAD: HIS ---. PCA, PCEA *weθkah-tekw-i (S); Nt /wəskatək/ (wuskodtuk).

FOUR. PCA *nye·wwi (B1); Nt /yawwi, yaw/ (yauwe, yau). Cp. Pn.Ha yyéwwi *four times*, yyeww *four*.

FREEZE. PCA *tahkya·ki (B1) *when it is cool* (F tahkya·ki, C tahka·k, M tahki·k [reshaped], O takka·k); Nt /taʰkakwak/ (tohkokquok *when it is cold, in a season of cold*). Cp. Nr tahki *it is cold*, taúkocks *cold weather*; also PCEA *takwa·k-(Ha) *it is autumn*, (C.L takwákin, eO tekwa·ki, Sh takwa·ki, Mi täkwa·kiwi); Nt /takwvtin/ (togquáttin *it freezes*), Nr taquònck *fall of the leaf*, Pw.T taquitock *the harvest and fall of the leaf*.

GO AFTER. PCA †na·sehke·wa *he approaches, goes to get him*, *na·sehkamwa (B1) *he approaches, goes to get it*; Nt /nusəkawaw/ (noosukauau *he goes after, pursues him*).

GRANDMOTHER: THY ---. PCA †ko·hkomehsa, *no·hkomehsa (B1) *my grandmother*; Nt /kvkəməs/ (kokummus), /kvkəmis/ (kokummes *thy aunt*). Cp. Pn.Ha nòhkəməs *my grandmother*.

GREASE. PCA *pemi (M); Nt /pəmi/ (pummee *oil*).

HAIR. PCA *mi·ʔši- (morphophonemically *mi·ʔθ- [ʔ]) (M) *hairy, fuzzy*; Nt /misənk/ (meesunk, meissunk, mesunk *hair on the head* [collective n.]). Cp. Nt (weshágan) *hair on the body*, Nr wésheck *the hair*, Sh wiiši *head, his head*, wiileʔθa *his head hair, head hair-s*, Mi wilsa *hair*.

HAND. See FINGER.

HEAR: HE ---S HIM. PCA *no·ntawe·wa (B1); Nt /nutaw/ (nootau). Cp. Pn.Ha nótamən *I hear it*.

HEART: HIS ---. PCA *we-te·h-i (B1); Nt /wətə(·)/ (wuttah "pronounced, says Duponceau, "as the German dee or tee (English day or tay)" ".[18]

HOLD. PCA *netahkona·wa (M) *I hold him*; Nt /taʰkwənaw/ (tohqunau *he holds him fast*).

HOT. PCA *kešite·wi (H) *it is hot*; Nt /kəsitaw/ (kussittau, kussitteau *it is hot weather*).

HOUSE. PCA *wi·k (B1); Nt /-ik/ (neek, nek *my house*, week, wek *his house*). Cp. M ne·k *my dwelling*.

JAW. PCA *neta·hpiθkani, PCEA neta·hpixkani (S) *my jaw, chin*; PCA †weta·hpiθkani *his jaw*. Nt /wətampvk, wətampvkan . . ./ (wutompeuk, wuttompek *his jaw*, wutompukone *adj.*, wutompeukanoooash *their jaws*).

KICK: HE ---S IT. PCA *tankeškamwa (B1); Nt /takiškam/ (togkishkom *he kicks at/against it*).

KILL: HE WAS ---ED. PCA *neʔθa·wa (B1); Nt /nəšaw/ (nushau, nusheau *he is/was killed*).

KNEE: SOMEONE'S ---. PCA *meketekw-i (M); Nt /məkətək/ (mukkuttuk *the knee*).

LAND. PCA *aθkyi (B1) PCEA *axkyi; Nt /aʰki/ (ohke *earth, land*, cf. ohkekontu *out of the ground*).

[18] Trumbull; ibid, p. 275.

LAUGH. See PLAY.

LEG: HIS ---(S). PCA *weθka·ci, *weθka·tali, PCEA *wexka·ci, wexka·tali (S); Nt /wəʰkant/ (wuhkont his leg), /wəʰkanteš/ (wuhkontash *his legs*). Cp. Nr mohkònt-ash *legs*.

LICK: HE ---S IT. PCA *no·skwa·tamwa (B1); Nt /nuskwatɛm/ (noosquodtam, noosquatam).

LIFT UP: HE ---S IT. PCA *wempenamwa (B1); Nt /wvpinum/ (waapinum *he holds/lifts it up*).

LIVE (*vb*). PCA †pema·tamwa, *pema·tesiwa (B1) *he lives*; Nt /pamantɛm/ (pômantam *he lives*, pomantog *when he lives*, pamontamunutch *living*).

LIVER: HIS ---. PCA, PCEA weθkwan-i (S); Nt. wəˢ | škwən (wushqun, wusqun).

LONG. PCA *kenw-, *kenosiwa (H) *he is long*; Nt /kwəni/ (qunni *it is long*).

LOOK. PCA *wa·pantamwa (B1) *he looks at it*; Nt /-wampɛtɛm/ (nadtauwòmpattam *he looks for it*, wonpu, onpu *he sees, looks*---not found separately but used to form compounds). Cp. PCA *-a·p-, *wa·p- (B1).

LOSE. PCA *wanahanθe·wa (B1) *he loses the trail of him*, (C wanahahte·w, M wawa·naha·hnew), *-ahanθ- | *track, trail*, *-ahanto· *trans. inan.* (M wawa·naha·htaw *he loses track of it*). Nt /wɛnvhaw/ (wanneheau *he loses him*), /wɛnvʰtaw/ (wannehteau, wanteau *he loses it*, cf. wanneheont *he who loses animate object*, wannehteauunát, wanteauunát *to lose inanimate object*). The Nt forms lack any reflex of *-ahanθ- *track, trail*; hence, they are as if they corresponded to otherwise unattested †wanahe·wa *he loses him* and †wanahta·wa *he loses it*.

LOUSE. PCA *ehkwa (B1) †ehkwaki, *plur.*; Nt /yvʰkwak/ (yeuhquog, yeukoog *lice*).

TANAINA SUBGROUPS

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1. Exclusively-shared innovations
2. Lexico-statistic data
3. Conclusion

1. In 1937 Osgood published a comparative Tanaina vocabulary for six groups, Kachemak Bay, Kenai, Tyonek, Upper Inlet, Susitna and Iliamna, here abbreviated respectively B, K, T, U, S and I.[1]

Given for example B kokdai *moose*, K nígi, T nígi, U ni·gí, S nígi, I koktai; B ɬíga *dog*, K ɬíq̓a, T ɬíqa, U ɬíka, S ɬíq̓a, I ɬíga; B wáč *sea gull*, K wáč, T nólwáiye, U nó·lwa·, S nolbáyi, I wáč; B dóndíya *moosefly*, K dondíya, T dondíya, U nigíčíša, S nigíčíča, I x̌iwáža; B q̓éq̓de· *basket fiber*, K q̓éq̓a, T wínči, U q̓ínči, S bínči, I q̓áx̌da; B kážna *lynx*, K kážna, T kážna, U nidyá, S nídyi, I kážna; B q̓é?γé· *porcupine*, K q̓i?γe·, T kánči, U qanžį́, S kánči, I níni·; B wakčikníyi *wolf*, K wókčíníyi, T wókčíníyi, U tígóne, S tígóni, I čótní·yi?, note that the following table can be set up.

	B	K	T	U	S	I
moose	A	B	B	B	B	A
dog	A	A	A	A	A	A
sea gull	A	A	B	B	B	A
moosefly	A	A	A	B	B	C
basket fiber	A	A	B	B	B	A
lynx	A	A	A	B	B	A
porcupine	A	A	B	B	B	C
wolf	A	A	A	B	B	C

In this table, forms which are alike (presumably cognate) are represented by the same capital letter; thus B kokdai and I koktai *moose* are represented by the tabular letter A and K, T, S nígi, U ni·gí *moose* are represented by the tabular letter B. The letter C is assigned to forms not cognate with forms represented by A or B.

In the present study, such a table was constructed using Osgood's comparative Tanaina vocabulary, which has 294 sets, including full sets, with six or more items, and partial sets. Partial sets and sets with one or more identifiable loanwords from Russian or Eskimo were not tabulated. Tabulated sets numbered 185.

Of these 185 sets, 108 registered as cases of AAAAAA (as with *dog* above). English glosses for these cases are given here:[2] humpback salmon, silver salmon, king salmon, clam (d), mountain sheep, beaver, muskrat, ground squirrel, mink, ermine, dog, hair seal, sea otter, beluga, large whale, eagle, mallard duck, grouse, ptarmigan, loon, parsnip-like tuber (a), wild onions, spruce gum, dry fish, fish eggs, marrow, well, firedrill, kamleika (clothing), combination trousers and footwear, fur parka, house boots, robe, mittens, belt, barbara (shelter), thatching grass, smoke house, sweat house, brush (for bed), door, one-hatch kaiak, umiak, paddle, sail, snowshoes, sled, pack stick, mat, sinew, porcupine quills, dip-net, detachable bone spear point, spear thrower, club, deadfall, bow, blunt bird arrow, arrow feathers, sling, woman's knife, spruce root basket, bear intestine bag, club, medicinal plant (Artemisia tilesii), red paint, song, story, stick game, village, family, rich man, first chief, potlatch, shaman, ceremonial stick, alders, bad, birch, boys, but, children, fern, fern leaf, fur, good, goodbye, hurry up!, island, kidneys, lake, louse, moon, mountain, nose, people, rain, river, spruce, star, stone, tomorrow, tongue, water lily white, wind, east wind, yes.

The remaining 77 sets fell into 24 classes.

[1] Cornelius Osgood, The ethnography of the Tanaina, Yale University Publications in Anthropology 16.208-218 (1937). I assume that languages rather than dialects are involved.

[2] See Osgood, ibid., for Tanaina forms; the glosses follow Osgood's order of presentation.

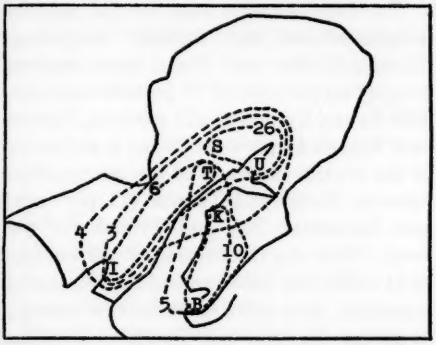

DIAGRAM 1. Tanaina innovational subgroups

Of these 24 classes, 13 have one member, AAAABC mosquito, AAABAC sleeping room, AAABBB crane, AAABCB sea lion, AAABCC hawk, AABAAB swan, AABABA winter undergarment, AABBAA hat, ABAAAA potlatch game, ABABAA second chief, ABACBB poor man, ABBBBA moose, ABCCDE fox. One class has two members, AABBBC porcupine, tree squirrel. Three classes have three members, AAABAA black bear, doll, girls, AAABCA spruce fiber, arrow, north wind, AABBBB marten, mask, guts. Three classes have four members, AAAABA rabbit,[3] footwear, man's knife, sleeping platform, AAABBC wolf, black paint, moosefly, wolverine, ABBBBB brown bear, raft, fish spear, sleeping place. Two classes have five members, AABBBA dog salmon, sea gull, basket fiber (spruce root center), fish weir, snow, AABCCB raven, corrugated log lean-to, wood shovel, no, sun. One class has 14 members, AAAAAB red salmon, candlefish, ground hog, white owl, brown owl, geese, earrings, four-pole cache, wood spoon, black, heart, liver, skin, yellow. Finally, one class has 17 members, AAABBA caribou, lynx, bird's eggs, brush leanto, fire, copper, line made of skin, spruce root line, stone wood polisher, stone adze, dance, rattle, bladder, cottonwood, flower, oil, stomach. These data are usefully tabulated for the counting of exclusively shared innovations (and, see §2, shared cognates), as follows.

	B	K	T	S	U	I
1	A	A	A	A	B	C
	A	A	A	B	A	C
	A	A	A	B	B	B
	A	A	A	B	C	B
	A	A	A	B	C	C
	A	A	B	A	A	B
	A	A	B	A	B	A
	A	A	B	B	A	A
	A	B	A	A	A	A
	A	B	A	B	A	A
	A	B	A	C	B	B
	A	B	B	B	B	A
	A	B	C	C	D	E
2	A	A	B	B	B	C
3	A	A	A	B	A	A
	A	A	A	B	C	A
	A	A	B	B	B	B
4	A	A	A	A	B	A
	A	A	A	B	B	C
	A	B	B	B	B	B
5	A	A	B	B	B	A
	A	A	B	C	C	B
14	A	A	A	A	A	B
17	A	A	A	B	B	A

With the use of this table, exclusively shared innovations were found for various groups, as indicated (from the lowest number other than zero, to the highest): Kachemak Bay-Tyonek 1, Kachemak Bay-Iliamna 1, Kenai-Susitna 1, Tyonek-Susitna 1, Tyonek-Upper Inlet 1, Susitna-Iliamna 1, Upper Inlet-Iliamna 1, Susitna-Upper Inlet-Iliamna 1, Kachemak Bay-Kenai-Tyonek-Susitna 1, Tyonek-Susitna-Upper Inlet-Iliamna 3, Kenai-Tyonek-Susitna-Upper Inlet-Iliamna 4, Kachemak Bay-Kenai-Tyonek 5, Tyonek-Iliamna 6, Kachemak Bay-Kenai 10, Susitna-Upper Inlet 26. These results, excluding cases of 1, are shown in Diagram 1.

2. The subgrouping of §1 is accessory to subgrouping by a lexico-statistic procedure.[4]

[3] Tyonek has A and B (B is gah, a common Athapaskan form; cf. Navaho 'gah *rabbit*).

[4] Cf. Isidore Dyen, Language distribution and

This procedure in the present study involves the tabulation of all pairs of shared cognates in each of the 77 available sets. Thus every case of identical tabular letters, for example in ABBBBA *moose* the case of A for both Kachemak Bay and Iliamna, or the cases of B for Kenai, Tyonek, Susitna and Upper Inlet, taken in pairs, is registered. Results are shown below.

Kenai	68				
Tyonek	53	55			
Susitna	32	27	37		
Upper Inlet	22	26	36	58	
Iliamna	37	39	42	15	16
	B	K	T	S	U

3. The value of these results is problematic. By discounting innovations that number five or less, an assumption of the sharp splitting of Proto-Tanaina into separate groups, an assumption used in comparative work, is supported. Three (call them 'primary') subgroups emerge, Iliamna-Tyonek, Kachemak Bay-Kenai, and Susitna-Upper Inlet.

In attempting to account for the innovations which range together members of primary subgroups, for example Iliamna-Tyonek-Susitna-Upper Inlet-Kenai (four innovations), and to account for the relative number of innovations per group, a certain assumption is interesting. By assuming that the relative number of shared innovations of a primary subgroup is an index of the length of time that the primary subgroup has had a stable locus, movement south from the inland Susitna-coastal Upper Inlet area to coastal areas along Cook Inlet can be inferred. A similar pattern of migration by inland Athapaskans towards the Pacific coast has been suggested by Melville Jacobs for tribes of Washington and Oregon.[5]

The lexico-statistic data for the primary subgroups are not entirely surprising; Kachemak Bay and Kenai have retained roughly 88 per cent of 77 possible cognates, Susitna and Upper Inlet 75 per cent, Iliamna and Tyonek 55 per cent. What is surprising is the relative closeness of the relationships between Kenai and Tyonek (71 per cent) and Kachemak Bay and Tyonek (69 per cent). With the discounting of percentages of 51 or less (i.e. based on less than 40 shared cognates), two primary subgroups emerge, Northern Tanaina and Southern Tanaina. The following subgrouping is proposed, on admittedly sparse data:

A. Northern Tanania
   1. Susitna
   2. Upper Inlet
B. Southern Tanaina
   1. Kachemak Bay-Kenai-Tyonek
      (a) Kachemak Bay-Kenai
         (1) Kachemak Bay
         (2) Kenai
      (b) Tyonek
   2. Iliamna

This classification, based on lexical similarity, may invite revision when more is known about Tanaina and other Athapaskan languages. In grouping northern Athapaskan languages, Sapir described Kutchin as "probably the most specialized of all Athapaskan languages,"[6] and he did not subgroup Kutchin with Hare or any other language. Yet Hoijer has shown that Kutchin and Hare are more closely related to each other, on lexico-statistic grounds (sharing 81 per cent of 100 test words), than either is to any other Athapaskan language treated in Hoijer's study.[7] An extensive statistical study of Athapaskan subgroups, following (but with much more data) the method here illustrated for Tanaina, may lead to interesting results.

migration theory, Lg. 32.612 (1956); a lexico-statistic procedure "can be used to construct a family-tree in a rigorous fashion either alone or with supplementary criteria."

[5] Melville Jacobs, Historic perspectives in Indian languages of Oregon and Washington, The Pacific Northwest Quarterly 28.55-74 (1937).

[6] Cornelius Osgood, The distribution of the northern Athapaskan Indians, Yale University Publications in Anthropology 7.22 (1936).

[7] Harry Hoijer, The chronology of the Athapaskan languages, IJAL 22.227 (1956).

SENECA MORPHOLOGY II:* IRREDUCIBLE VERBS AND NOUNS; THE MODAL VERB

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5. The irreducible verb stem
5.3. The verb root
5.5. The aspect suffix
6. The singular subjective prefix
7. The irreducible noun
7.2. The subjective prefix
7.4. The irreducible noun stem
8. The modal verb

5.1. Any word that contains an aspect suffix will be called a VERB, while any word that contains a noun suffix will be called a NOUN. All other words are PARTICLES. These three morphologically defined word classes coincide approximately, but not exactly, with word classes defined syntactically. The structure of particles will not be described in this work; most of them consist of only one or two morphemes. **5** and **6** will deal with the structure of the irreducible (**2.15**) verb, **7** with that of the irreducible noun.

5.2. The constituents of the irreducible verb are a SINGULAR SUBJECTIVE PREFIX and an irreducible VERB STEM, the latter consisting in turn of a VERB ROOT followed by an ASPECT SUFFIX. Singular subjective prefix, verb root, and aspect suffix are morpheme classes. The structure can be diagramed as follows:

Irreducible Verb		
Singular Subjective Prefix	Irreducible Verb Stem	
	Verb Root	Aspect Suffix

An example from **2** is kihsa:s *I'm looking for it*, with the singular subjective prefix k- *first person* and the verb stem -ihsa:s, the latter composed of -ihsa:- *look for* and -s *iterative* (**2.4**ff.). The structure of the irreducible verb stem will be taken up in this section. **6** will then deal with the construction which combines the stem with a singular subjective prefix.

5.3. Verb roots form a large, vaguely defined morpheme class whose limits vary considerably from idiolect to idiolect. Many verb roots have only one basic prosodic shape, which then occurs in the alternates described in **3** and **4**. Others have several basic prosodic shapes, a complete description of which will be left to a lexicon.[1] Simply as examples of alternations conditioned by the aspect suffix, the following may be noted: (a) verb roots which end in -kt- before the descriptive and iterative morphemes, but -ket- before the imperative: -hsá?kt-/-hsá?ket- *bend*; (b) verb roots which end in -?w- before the descriptive and iterative, but lack these two phonemes before the imperative: -itá?w-/-itá- *sleep*; (c) verb roots which end in -'?- before the descriptive morpheme, but -'h- before the iterative and imperative: -swáé?-/-swáɛ́h- *dislike*. There are still other alternations conditioned in similar ways, some classifiable as types that recur with several roots and others unique.

5.4. One type of alternation calls for special comment. Certain root morphemes will be listed as containing the vowel sequence aæ, a sequence that never actually occurs. This is a device to indicate that the morpheme occurs with a:a if vowel length is conditioned between the two vowels as described in **4**, and that it occurs with ææ (i.e. æ:, according to **3.19**) otherwise. Note the alternative forms of -kwɛtaɛ́?- *become*

* Seneca Morphology I, IJAL 26.11-22.

[1] A Seneca lexicon, which is in large part a list of verb and noun roots, is now in preparation.

lonely in hakwɛtæ:ʔs *he becomes lonely*, hatikwɛta:aʔs *they become lonely*.[2] Other morphophonemic alternations indicated by this device are of little relevance here and will be described in a later section.

5.5. The aspect suffix restricts the meaning of the verb root which it follows in various ways, described below. There are four aspect suffixes of widespread occurrence: the DESCRIPTIVE, ITERATIVE, IMPERATIVE, and PUNCTUAL.[3] The first three will be described in this chapter. The punctual, because it occurs only within a modal verb, will be introduced with the latter in **8**. Two additional aspect suffixes, the PURPOSIVE and the NEGATIVE PAST, will be taken up in still later chapters. A verb stem containing the descriptive morpheme will be referred to as being IN THE DESCRIPTIVE ASPECT, and similarly with the other aspect suffixes. The allomorphs of the aspect suffix morphemes are conditioned by the preceding morpheme in an unpredictable fashion, and must be listed for each verb root. Except for a correlation between the shapes of the imperative and punctual morphemes (**8**), moreover, the aspect allomorphs are also largely independent of each other.

5.6. The descriptive morpheme (-ˈʔ/-ʔ/-ˈh/-h/-ɬh/ɔ̃h/-ɔh/-0)[4] restricts the meaning of the verb root to a continuous action or state without defined temporal limits: -ˈʔ in haʔha:steʔ *he's strong* (-ʔhaste-),[5] -ɔ̃h in haya:sɔh *he's called, his name is* (-yas-), -0 in kani:yɔ:t *it's hanging, it's been hung* (-niyɔt-). With a verb root that does not have a directly adjectival translation in English, no very satisfactory English equivalent is usually available: ho:kɔh (-k- *eat*) may be translated *he is eating it, he has eaten it*, or *he ate it*.[6] I shall use the convention of translating such descriptive forms with the English perfect, e.g. *he has eaten it*, but the arbitrariness of this convention should be clearly realized. In narration the descriptive is used in a special way: to indicate action in the past. Thus in translating a narrative *he ate it* would be the most appropriate English equivalent for the above example.

5.7. Examples of the descriptive allomorphs are: -ˈʔ in ha:etkɛʔ *he's ugly* (-etkɛ-), -ʔ in wa:se:ʔ *it's new* (-ase-), -ˈh in haji:nɔh *he's a male* (-jinɔ-), -h in wa:ke:h *it's different separate things* (-ake-), -ɬh in hokwɛh *he's picked it* (-kw-), -ɔ̃h in kanɔ:hɔh *it's full* (-nɔh-), -ɔh in hokáʔtsɔ:h *he's taken it apart* (-káʔts-), -0 in ʔi:yɔ:s *it's long* (-ɔs-).

5.8. The iterative morpheme (-háʔ/-ˈáʔ/-áʔ/-ˈɔ́ʔ/-ˈh/-ˈs/-s/-ás/-ˈʔs/-ɬʔs/-ɛ́s/-ɔ̃s/-ɔ́ʔs/-0) restricts the meaning of the verb root to repeated or periodic events, or to an episodic event in progress but incapable of indefinite prolongation: -háʔ in haníyɔthaʔ *he hangs it, is hanging it*, -ˈh in ha:kɛh *he sees it* (-kɛ-), -s in haʔya:s *he shoots it, is shooting it* (-ˈʔyak-; **3.3**). The meaning is comparable to that of the German present tense; cf. er hängt es, etc. With a verb root denoting some kind of linear motion, the iterative is often translated with the word *around* (or *about*): -ˈʔs in hata:kheʔs *he's running around* (-takhe-; cf. the descriptive -ˈʔ in hata:kheʔ *he's running*). With a verb root normally translated into English as an adjective, a plural meaning is given by the iterative: -ˈʔs in wi:yoʔs *it's good repeatedly, several things are good* (-iyo-).

5.9. Examples of the iterative allomorphs are: -háʔ in wahsa:haʔ *it begins* (-ahsaw-; **3.10**), -ˈáʔ in hatá:nyoaʔ *he fishes* (-atá:nyo-), -áʔ in hɔ́isyɔhkwaʔ *he persists* (-ɔisyɔ́hkw-), -ˈɔ́ʔ in khyatɔ́:ʔ *I write* (-hyatɔ-; **3.19**), -ˈh in hanɛ́hkwih *he hauls it*

[2] hati- *they* is an expanded prefix to be described in a later chapter.

[3] Lounsbury calls the cognate suffixes in Oneida PERFECTIVE, SERIAL, IMPERATIVE, and PUNCTUAL.

[4] 0 indicates a zero allomorph.

[5] In examples, a verb root which appears for the first time or whose form is for some other reason of particular interest will be given in parentheses in its basic prosodic shape.

[6] As well as *he/it is eating him*, etc., meanings which depend on peculiarities associated with the prefix and will be discussed in that connection. The prefix ho- in ho:kɔh is an expansion.

away (-néhkwi-), -ˊs in kanó?nowɛs *it melts* (-no?nowɛ-), -s in hahso:s *he paints* (-áhso-), -ás in kekwas *I pick it*, -ˊ?s in ka:etkɛ?s *ugly things*, -é?s in kakwe:nye?s *it's able to* (-kweny-), -és in teyé:nya?khɛs[7] *she puts it together* (-:nya?kh-), -ós in yekéhsɔs *she's rinsing it* (-kéhs-), -ó?s in kakɛ:to?s *white things* (-kɛɛt-), -0 in ha:ya:s *he calls it*.

5.10. The imperative morpheme (-ˊh/-h/-áh/-ɛ́h/-éh/-íh/-óh/-t/-k/-0), as the name implies, restricts the meaning of the verb root to an exhortation: -ˊh in ha:kɛh *let him see it!*, -éh in sniyo:teh *hang it up!* -0 in ?i:se:k *eat it!*.

5.11. Examples of the imperative allomorphs are: -ˊh in snɛhkwih *haul it away!*, -h in ses?a:h *eat it up!* (-s?a-), -áh in haske:hah *let him fight over it!* (-askeh-), -ɛ́h in snekéɛh *drink!* (-hneké-; **3.8**), -éh in wahsa:wɛh *let it begin!*, -íh in sekéhsih *rinse it!*, -óh in se:koh *pick it!* (-kw-; **3.12**), -t in ka:kɛ?t *let it dissolve!* (-ké?-), -k in howá?hi?k *let him stutter!* (-wá?hí?-), -0 in so?ne:k *move it out of the way!* (-ó?nek-).

6.1. The stem of the irreducible verb may be preceded by one of five singular subjective prefix morphemes: the FIRST PERSON, SECOND PERSON, MASCULINE, FEMININE, and NEUTER. The first person (k-/ke-) and second person (s-/se-/j-/ji-) morphemes denote respectively the speaker and the hearer. The masculine morpheme (ha-/hæ-/hɛ-/h-) denotes a male human being. The feminine morpheme (ye-/y[ɛ]-/y[ɔ]-/y-/yak-/ya-)[8] either denotes a female human being or is an indefinite reference to people in general, translatable as *people*, *they*, *one*. The neuter morpheme (ka-/kæ-/kɛ-/w-/y-/k-) denotes either an animal or something inanimate.

6.2. The grammatical meaning of this construction varies somewhat depending on the aspect of the verb stem. If a singular subjective prefix occurs with a descriptive stem, the meaning of the stem is always intransitive and describes the person or thing denoted by the prefix: ki?tyo? *I'm set, settled, seated*; *I dwell* (-ɬ?tyɔ-), haya:soh *he's called, his name is*, kani:yo:t *it's hanging*. If a singular subjective prefix occurs with an iterative or imperative stem, it indicates the performer or instigator of whatever is denoted by the stem; if the meaning of the stem is transitive, a neuter goal is understood: hɛ:eyɔs *he's dying* (-ɬey-), yenίyɔtha? *she's hanging it*, ?i:se:k (*you*) *eat it!* (with initial ?i by **6.11**).

6.3. The allomorph of the singular subjective prefix morpheme is largely determined by the initial phoneme or phonemes of the basic allomorph of the following morpheme. There are, however, a few verb roots whose conditioning of prefix allomorphs must be individually described. Some verb roots also have alternate shapes which are conditioned by the preceding morpheme. Of these root alternations, some are frequent enough to warrant special symbolization in the listing of roots. (h) at the beginning of a root indicates that the basic allomorph begins with h after a consonant, but has no corresponding phoneme after a vowel. (y) indicates y after a consonant and no corresponding phoneme after a vowel. (hy) indicates hy after a consonant and no corresponding phonemes after a vowel. (h/:) indicates that the basic allomorph begins with h after a consonant, but : after a vowel. (C) represents no phoneme, but indicates that the preceding allomorph is that which regularly occurs before a consonant, although here it occurs before a vowel. When a prefix allomorph is said to occur before a root morpheme whose basic allomorph begins with a consonant, basic allomorphs listed as beginning with the above symbols are understood to be included, unless specifically excepted. Examples of roots with these beginnings are: -ˊ(h)etkɛ- *be bad, ugly*, -(y)ɔkw- *take for*

[7] With the duplicative prefix te-, described in a later chapter.

[8] Square brackets are used to indicate the portion of an allomorph which overlaps the following morph.

one's own, -'(hy)owi- *tell*, -'(h/:)yatɔ- *write*, -(C)æʔthɛ- *climb*.

6.4. The first person morpheme has the following allomorphs: k- occurs before a morpheme whose basic allomorph begins with a vowel, a single resonant, t not final in a word, or any of the alternations given special symbolization in **6.3**: kɔheʔ *I'm alive* (-ɔhe-), kye:nɔ:s *I grab it* (-yenɔ-), ktakheʔ *I'm running*, khetkɛʔ *I'm ugly*, khyatɔ́:ʔ *I write*, kæʔthɛs *I climb*; ke- occurs before a morpheme whose basic allomorph begins with k, s, ʔ, word-final t, or any cluster of two consonants that does not consist of h followed by a resonant: ke:kɛh *I see it*, kesáeʔta:s *I eat beans* (-saeʔta-k-),[9] keʔéotha? *I'm setting traps* (-ʔé-ot-), ʔi:ke:t *I'm standing* (-t-; **6.11**), kethéʔtha? *I pound* (-théʔt-).

6.5. The second person morpheme has the following allomorphs in word-initial position:[10] s- occurs in the same environments as the first person allomorph k-, but not before i, (C)i, or y: sɔheʔ *you're alive*, stakheʔ *you're running*, shetkɛʔ *you're ugly*, syatɔ:h *write!* (**3.8**), sæʔthɛh *climb!*; se- occurs in the same environments as the first person allomorph ke-: se:kɛh *you see it*, sethéʔt *pound it!*; j- occurs before a morpheme whose basic allomorph begins with i, (C)i, or y, and in the case of y the y is replaced by (C): jiʔtyɔ:h *set it!*, *jihsa:k look for it!* (-[C]ihsak-), je:nɔ:h *grab it!*, ʔijɛt *hit it!* (-yéht-; **6.11**, **4.6** end); ji- occurs before the verb root -jakɔ- *do one's best*: jija:kɔ:h *do your best!*.

6.6. The masculine morpheme has the following allomorphs in word-initial position: ha- occurs before a morpheme whose basic allomorph begins with a consonant, but not before (C)æ or (y)ɔ: hayétha? *he hits it* (-yéht-; **3.6**), háihsa:s *he's looking for it*; hæ- occurs before a morpheme whose basic allomorph begins with (C)æ: hǽ:ʔthɛs *he climbs* (**3.19**); hɛ- occurs before a morpheme whose basic allomorph begins with (y)ɔ or i, and in the latter case the i is lacking: hɛɔkwas *he takes it for his own*, hɛʔtyɔʔ *he dwells* (-íʔtyɔ-); h- occurs before a morpheme whose basic allomorph begins with a vowel other than i: hosæ:s *he's sprinkling it* (-os[C]æ-), hóheʔ *he's alive*, ha:tɔh *he says it* (-atɔ-), hɛnéyɔ:ʔ *he tells fortunes* (-ɛneyɔ-).[11]

6.7. The feminine morpheme has the following allomorphs in word-initial position: ye- occurs before a morpheme whose basic allomorph begins with a consonant or i, and in the latter case the i is lacking: yeyétha? *she hits it, people hit it*, yéihsa:s *she's looking for it*, yeʔtyɔʔ *she dwells*; y[ɛ]- occurs before and overlaps a morpheme whose basic allomorph begins with e, [ɛ] occurring in place of the e: ʔi:yɛʔ *she's walking* (-e-; **6.11**); y[ɔ]- occurs before and overlaps a morpheme whose basic allomorph begins with a, [ɔ] occurring in place of the a: yɔ:tɔh *she says it*; y- occurs before a morpheme whose basic allomorph begins with ɛ: yɛnéyɔ:ʔ *she tells fortunes*; yak- occurs before a morpheme whose basic allomorph begins with o or ɔ, as well as before the morphemes -a- *be of a certain size* and -aʔáa- *be small*: yakó:ɔʔ *she mends* (-oɔ-), yakɔ:heʔ *she's alive*, niya:kaʔ *how big she is*, niyakaʔá:h *she's small*;[12] ya- occurs before the morpheme -íey- *die*: yáie:yɔs *she's dying*.

6.8. The neuter morpheme has the following allomorphs: ka- occurs before a morpheme whose basic allomorph begins with a consonant, but not before (C)æ

[9] Only expansions of the verb root, to be described later, were available as examples of ke- before s and ʔ.

[10] Additional allomorphs of this and some of the following morphemes, occurring in noninitial position, will be described in **8**. In **6.5–8** the term basic allomorph means, strictly speaking, the most frequent basic allomorph, since more restricted alternative forms are indicated.

[11] Morphs are described as overlapping only if neither of them occurs elsewhere with the ambiguous phoneme (cf. **6.7**). Otherwise the phoneme is assigned to the root (as in the last two examples here), or to the morph closest to the root.

[12] The initial ni- belongs to the partitive morpheme, which regularly occurs with these roots.

or (y)ɔ: kayétha? *it hits it*, káihsa:s *it's looking for it*; kæ- occurs before a morpheme whose basic allomorph begins with (C)æ: kǽ:?thɛs *it climbs*; kɛ- occurs before a morpheme whose basic allomorph begins with (y)ɔ or i, and in the latter case the i is lacking: kɛɔkwas *it takes it for its own*, kɛ?tyɔ? *it dwells*; w- occurs before a morpheme whose basic allomorph begins with a, e, or ɛ, and before the verb root -iyo- *be good, beautiful*: wa:tɔh *it says*, wɛtɔ́:s *it waves* (-ɛtɔ́-), wi:yo:h *it's good*; y- occurs before a morpheme whose basic allomorph begins with o or ɔ: yokhas *it's dripping* (-okh-), yɔhe? *it's alive*; k- occurs before a very small number of roots beginning with o: kowa:nɛh *it's big* (-owanɛ-).

6.9. A few morphophonemic items require further comment. First of all, any root whose basic allomorph begins with (h)æ occurs in an allomorph with a in place of the æ after any allomorph that ends in a (i.e., of the above, masculine ha- and neuter ka-): -'(h)ǽht- *pass by* occurs as -áht- (and -':t- by automatic alternations; **3.6, 19, 23**) in há:tha? *he passes by*, ká:tha? *it passes by*.

6.10. There are also certain categories of roots beginning with yɛ that require special mention. One group behaves, in the conditioning of preceding allomorphs, as if the roots began with a consonant cluster. These roots will be listed with an initial y(C):[13] -y(C)é- *know how* in keyéɔh *I know how*. Another group lacks the initial y after the first person allomorph k-. These roots will be listed with an initial superscript y: -ʸɛ́hsɛ- *be at home* in kɛhsɛ? *I'm at home*. A third group exhibits neither of these irregularities: -yɛtei- *know* in kyɛte:ih *I know it*.

6.11. Finally, no verb contains fewer than two vowels. If a verb would otherwise contain only a single vowel, its initial morpheme occurs in an allomorph beginning with ?i. Examples are ?ij- *second person* in ?ijɛt *hit it!*, ?ike- *first person* in ?i:ke:t *I'm standing*. With a masculine allomorph, however, the i is basically strong and the following h is lacking (cf. **8.7**): ?ia- *masculine* in ?i:at *he's standing*.

[13] This use of (C) is consistent with and an extension of that described at the end of **4.6**.

7.1. The structure of the irreducible noun is analogous to that of the irreducible verb. There is a singular subjective prefix followed by an irreducible NOUN STEM, the latter consisting of a NOUN ROOT and a NOUN SUFFIX:

Irreducible Noun		
Singular Subjective Prefix	Irreducible Noun Stem	
	Noun Root	Noun Suffix

An example from **2** is kahsí?ta? *my foot*, with the subjective prefix k- *first person* and the noun stem -ahsí?tá?, the latter composed of -ahsí?ta- *foot* and -'? *simple noun suffix*.

7.2. Only the noun stem calls for detailed description. The singular subjective prefix morphemes were described in **6**, and the manner of their morphophonemic combination with noun roots is identical with that described for verb roots. With a noun stem the singular subjective prefix denotes, usually, the inalienable possessor of whatever is denoted by the stem, and thus is semantically limited to occurrence with stems indicating something that can be possessed in this way: k- *first person* in káɔhta? *my ear* (-aɔ́ht-), se- *second person* in sekɔ́ta?keh *on your nose* (-kɔt-), ha- *masculine* in ha:waji:yæ? *his family* (-'[h/:]wajiy[æ]-), ye- *feminine* in yewɛ:nɔ? *her, one's voice* (-wɛn-), ka- *neuter* in kaká:? *its eye* (-ká-). Most noun stems denoting body parts regularly occur with subjective prefixes. The neuter singular subjective prefix also occurs with many stems denoting things that are not inalienably possessed, in which case not possession, but only general existence is indicated: ka- in kasnɔ? *bark* (-sn-). There are some noun stems that apparently occur only with the neuter singular subjective prefix: kaji:sta? *ember* (-jist-).

7.3. What is actually a sixth singular subjective prefix morpheme, the INDEFINITE, occurs only before the noun root -ɔkwe- *person* and has the indefinite denotation otherwise included in the meaning of the feminine morpheme. It has the word-initial shape ʔ-, and anomalously conditions length after the following vowel when that vowel is both prefinal and the first in the word: ʔɔ:kweh *person* (cf. yakɔ:kweh *female person, woman*).

7.4. The irreducible noun stem, as has been noted, consists of a noun root followed by a noun suffix. In certain environments both noun and verb roots occur in what will be called their COMBINING ALLOMORPHS, and it is the combining allomorph of a noun root that occurs before a noun suffix. The combining allomorph is identical with the basic allomorph except for a supplementary final vowel, most often a, but in some morphemes æ or ɛ. There is no supplementary vowel if the root already ends in a vowel, or if it ends in ʔ. In listing noun and verb roots, if the combining allomorph ends in æ or ɛ this vowel will be given at the end of the root in parentheses: -ʼ(h)ósh(æ)- *box*. If no such vowel is indicated, and the root ends in a consonant other than ʔ, the supplementary vowel of the combining allomorph is a (or ɔ by **3.14**).

7.5. There are three noun suffix morphemes: the SIMPLE NOUN SUFFIX, INTERNAL LOCATIVE, and EXTERNAL LOCATIVE. The simple noun suffix (-ʼʔ/-ʼh) indicates nothing more than that the stem is a noun stem rather than a verb stem: -ʼʔ in káɔshæʔ *box*, kaʔwásta ʔ *stick* (-ʔwást-). The internal locative (-kɔh) indicates that reference is made to a location inside, or sometimes under, whatever is denoted by the noun root: káɔshækɔ:h *in the box*, kanóhsakɔ:h *under the house* (-nóhs-).[14] The external locative (-ʼʔkéh/-ʼ:néh) indicates that reference is made to a location on or at whatever is denoted by the stem: -ʼʔkéh in káɔshæʔkeh *on the box*, yóɛjaʔkeh *on the earth* (-óɛj-).

7.6. The simple noun suffix allomorph is -ʼʔ after all but a very few noun roots which take -ʼh: ʔɔ:kweh *person*, kɛjɔh *fish* (-ij[C]ɔ-). The internal locative has only the basic prosodic shape -kɔh. The external locative allomorph is -ʼʔkéh after all but a very few noun roots which occur with -ʼ:néh (some, but not all, being the same morphemes that take the simple noun suffix allomorph -ʼh): ʔɔkwé:neh *where people are*, koshé:neh *in the winter* (-oshe-).

8.1. There is one expansion of the entire verb structure described in **5** and **6** which is of such frequent occurrence that it seems advisable to introduce it at this point, even before expansions of the internal constituents of the irreducible verb are discussed. This is the MODAL expansion, and a verb containing it will be termed a MODAL VERB. It consists simply in the addition of a MODAL PREFIX to the structure already described, with the restriction that the verb stem must contain either the imperative or punctual aspect morpheme:[15]

Modal Verb	
Modal Prefix	Nonmodal Verb with Imperative or Punctual Stem

8.2. The imperative morpheme was described in **5.10–11.** The punctual morpheme (-ʼʔ/-ʔ/-ǽʔ/-æʔ/-éʔ/-íʔ/-óʔ/-t/-k/-0) restricts the meaning of the verb root to one unique event: -ʼʔ in ʔɛke:kɛʔ *I'll see it*,[16] -éʔ in ʔɛsniyɔ:tɛʔ *you will hang it*, -0 in ʔɛ:ye:k *she will eat it*. Its allomorphs and

[14] Seneca speakers in Canada allegedly use the same word to mean *in the house*.

[15] Exceptions to this last are a few words in which the optative prefix occurs with a descriptive stem: ta:yakótaʔɔh *she ought to have taken a stand*, nɔ:takayéanɔʔ *the way it should have been done* (both words with other constructions not yet described).

[16] With the future modal prefix ʔɛ-.

their conditioning are identical with those of the imperative morpheme except that wherever the latter has the phoneme h the punctual has ?.

8.3. The modal prefix morphemes are three: INDICATIVE, OPTATIVE, and FUTURE.[17] The indicative morpheme (?o?-/wa-) indicates that the second constituent's meaning is an incontestable fact, the validity of which is established either at the moment of the utterance or shortly prior to it: ?o?- in ?o?ki? *I say it, said it* (-i-), referring either to what I am immediately saying or to what I have just recently said; wa- in wa:ayɔ? *he arrives, arrived* (-yɔ-), said either at the moment of his arrival or not long after. I shall use the convention of translating indicative forms with an English past, e.g. *I said it, he arrived*, but it must be emphasized that a present tense translation is equally possible. The above examples contained the punctual morpheme. The indicative occurs with an imperative verb stem only within a further expansion of the entire verb, to be discussed in a later chapter.

8.4. The optative morpheme (?aa-) indicates that the second constituent's meaning is of possible or likely validity, and usually that the possibility is a desired one: ?a:ki? *I might, should, ought to say it,* ?a:ye:yɛt *she might, ought to hit it.* The optative occurs with an imperative verb stem only in the presence of the contrastive morpheme, to be introduced later.

8.5. The future morpheme (?ɛ-) indicates that whatever is denoted by the second constituent is certain to take place at some time in the future: ?ɛ:ki? *I'll say it.* It often has a strongly imperative connotation: ?ɛhse:k *you'll eat it!, eat it!.* When it occurs with an imperative verb stem and the word is preceded by the particle sɛ:nɔh *don't!,* the resultant meaning is that of a prohibition: sɛ:nɔ́h ?ɛhsih *don't say it!.*

8.6. In word-initial position before subjective prefix morphemes the optative and future morphemes have only the basic prosodic shapes ?aa- and ?ɛ- respectively. The indicative allomorph ?o?- occurs before all except the masculine and feminine morphemes, which condition wa-.

8.7. After any modal prefix the initial h of the masculine morpheme is lacking and the immediately preceding vowel is basically strong (**4.3**): wa:akɛ? *he saw it,* ?á:akɛ? *he ought to see it,* ?ɛ:ɔkɛ? *he will see it* (**3.14**). After the indicative morpheme only, ? occurs in place of y in the feminine allomorphs: wa?e:kɛ? *she saw it.* After the optative and future morphemes, but not the indicative, hs occurs in place of s or j in the second person allomorphs: ?á:hse:kɛ? *you ought to see it,* ?ɛhse:kɛ? *you will see it,* nɛhsye:? *how you will do it* (-ye-).[18] With these exceptions, the same allomorphs occur after the modal prefix morphemes as in word-initial position: ?o?ke:kɛ? *I saw it,* ?o?se:kɛ? *you saw it,* ?ɛye:kɛ? *she'll see it,* ?o?ka:kɛ? *it saw it,* ?ɛka:kɛ? *it will see it.*

[17] The cognate morphemes in Oneida are called by Lounsbury AORIST, INDEFINITE, and FUTURE.

[18] The initial n- belongs to the partitive morpheme, which regularly occurs with this root.

STEM CONSTRUCTION AND AFFIXATION OF SIERRA NAHUAT VERBS[1]

HAROLD KEY

SUMMER INSTITUTE OF LINGUISTICS

0.1. Purpose
0.2. Definition of verb
0.3. Root patterns
1. Stem construction and formulae
1.1. Simple stems
1.2. Complex stems
1.3. Equational verbs
2. Inflectional affixes
2.1. Prefixes
2.2. Suffixes
3. Irregular verbs
4. Particles with primary relationship to verbs

0.1. Three recent studies have been made in Nahuatl[2] but none attempted to analyze some of the important problems of the internal structure of the verb. Even older grammars did not handle this in detail. The aim of this paper will be to present in some detail the systematic patterns of compounding and affixing exhibited by the verbs of the Nahuatl language. This analysis is based on a slightly divergent dialect which belongs to the Nahuat group.

0.2. A verb[3] for this paper, is defined as a morpheme or complex combination of morphemes (as hereinafter described), which may occur syntactically as a complete sentence-forming construction, or in a syntactic construction with subject, object and/or modifiers. Semantically, verbs indicate action or state of being.

A verb stem (Vs) is defined as a morpheme or sequence of morphemes occurring with verb class markers (inflectional affixes).[3a] These are so called because they occur with elements of this syntactical distribution. It will be noted that certain root morphemes of this dialect occur only with verb class markers and others, which occur with verb class markers, may occur at times with noun class markers also. This latter class of roots will also be considered as Vs in this paper.

0.3. The most common canonical pattern of verb roots in this dialect is CVCV: -maka *give*, -čo·ka *cry*.[3b] However, there are

[1] Data were gathered by the author during various periods, in the field from 1948 to 1954, while working near Zacapoaxtla, Puebla, Mexico, under the auspices of the Summer Institute of Linguistics. The author owes a debt of gratitude to Archibald McKinlay, a former linguistic investigator in this dialect, for use of data upon which a part of this analysis is based, and to Ben Elson and other colleagues of the Summer Institute of Linguistics, for helpful suggestions in arranging data. For the phonemic analysis of this dialect see Key, Phonemes of Sierra Nahuat, IJAL 19.53–56 (1953).

The subject of morphophonemic phenomena is not discussed in this paper, although perhaps it should be noted that patterns of palatalization before t, loss of short vowels between voiceless stops, m or n fluctuating to point of articulation of the following consonant, and reduction of clusters of identical phonemes, are some of the salient features.

The morphological analysis as presented in this paper is based on the 500 or more verbs listed in: Key and Key, Vocabulario Mejicano, Instituto Linguistico de Verano, Mexico, D.F., 1953.

[2] Pittman, R. S., A Grammar of Tetelcingo (Morelos) Nahuatl, Language Dissertation 50, 1954; and Croft, Kenneth, Matlapa Nahuatl III, Morpheme Arrangements, IJAL 20. 37–43 (1954; Law, Howard W., Morphological Structure of Isthmus Nahuat, IJAL 24: 108–129 (1958).

[3] Morphologically we consider there are three major form classes in Nahuat: verbs (V), nouns (N), and particles (Pa) as mentioned in Croft, op. cit.

[3a] The line between formative and inflectional morphemes is perhaps drawn arbitrarily. The principal criteria for considering affixes derivational have been (1) affixes which change a major class (i.e. N to V, etc.), affixes which add an object, affixes which, in some instances, shift the basic meaning of the verb.

[3b] Verb roots and stems which are shown with-

the following patterns [illegible]o: CV, VCCV, VCV, CVCCV, CVC[illegible]V, CVCVCCV, CVCCVCV, and CVC[illegible]VCV: -k^{w}a *eat*, -ča *wait, hope*, -ahsi *m[illegible] arrive*, -ihto *say*, ili *tell*, -ita *see*, -cahci [illegible]*t*, -pa·cka *squeeze*, -tanewi *borrow*, -maya[illegible]*be hungry*, -tasohta *love*, -cohyaya *stink*[illegible] -wehwelo· *destroy*, -pepetaka *shine*. In [illegible]l probability these longer roots have b[illegible]n developed historically from compounds[8] or by the feature of reduplication (**1.2.1.1**). Nevertheless, in the synchronic analysis of this dialect these roots are stable, fu[illegible]tioning as single units and are meaningless if broken at any point.

1. Verb stems are comprised of simple roots (V indicates a verb root, N indicates a noun root, Pa indicates a particle) and/or sequences of roots or of roots plus formatives and/or connectives (**1.2**). In Nahuat compounds there is some indeterminacy of order in adding roots and formatives to make new stems.[4] It should also be noted that some inflected stems may occur inside a larger unit, the whole then occurring with inflectional affixes (**2.3.1**).

1.1. Simple stems (formula: V = Vs), occurring in patterns shown in **0.3**, end in three of the four vowel qualities, a, i, o:[5] -k^{w}a *eat*, -tami *finish*, -ili *say*, -weli *can*, -nemi *live*, -tehko *ascend*, -koko *be ill, hurt*, -te·mo- *search for*.[6]

1.2. Complex stems, with which the class-marking affixes of **2** may occur, are found in the following major patterns: (1) Root (V, N, or Pa) + primary formative, (2) Root (any type) + V, (3) Root (N/V) + connective + V, (4) limited combinations of (1), (2) and (3).

1.2.1. The following primary formatives may occur with monomorphemic stems and, in some cases, with polymorphemic stems.

1.2.1.1. Initial reduplication is considered among the primary formatives as it is a function that may occur with the simplest verb stem on the derivational level and because it affects the basic semantic import of the stem. It may also occur with more complex stems but can best be studied in its simplest environment. Initial stem reduplication occurs involving either the basic root or any preposed root or prefixed object There are two patterns of initial reduplication designated C_1V_1- and C_1V_1h-, and constituting two distinct morphemes.

C_1V_1-*repetition or emphasis of action*:[7] mo-*reflexive* + C_1V_1- + -to·nia *make warm* > mototo·nia *he thoroughly warms himself*; C_1V_1- + -či·wa *do, make* > čiči·wa *repeatedly*

out inflection are indicated by a hyphen preceding the form. Nouns are hyphenated only if they must occur with affixation. Prefixes and suffixes are indicated in the usual way.

[4] Pittman, op. cit. paragraph 26, p. 21. The author presented a basic difficulty in establishing a pattern of orders of affixes. Perhaps an alternative answer to the problem may be in simply recognizing the interchanging derivational-inflectional pattern of such affixes as ta-, mo-, -li and initial stem reduplication. This paper will endeavor to classify all morphemes as either derivational or inflectional, depending upon their function with a simple verb stem, but at the same time recognizes that the normal Nahuat pattern permits a shift of this category in some situations.

[5] Garibay, Angel Maria: *Llave de Nahuatl*, Imprenta Mayli S.A., Mexico D.F. (1940) p. 40 paragraph 39, implies a relation between the final vowels and transitive, intransitive, and stative verb-types. In this dialect there did seem to be some ground for such a conclusion, but fuller data revealed conflicts that refute the theory as applicable in its entirety to this area of the language. The majority, though not all, -a final verbs require an object prefix. The vestiges of contrast can be seen in some situations: -polo *lose* vs. -poli *lose oneself, be lost*; -tapana *break, shatter* vs. -tapani *crack by itself*.

[6] Also treated as verbs are noun stems with subject prefixes (**1.3**); these may occur without a final vowel.

[7] An allomorph C_1V_1·- appears to indicate a persisting or continuing of the same action: -toka *herd, drive along* > -to·toka *send an order*; -koči·sneki *want to sleep* > -ko·koči·sneki *continually want to catch little naps*; ki- *him* (obj.) + (C_1V_1·- + čiko *little* + ta·ka *man* + či·wa *make*) + -h *subject plural* > kiči·čikota·kači·wah *they always belittle him*; C_1V_1·- + yoweh *they went* > yo·yoweh *they kept going*. However, since there does not seem to be a clear contrast C_1V_1·- and C_1V_1- are classed together.

do same act; ki- *object indicator* + C_1V_1- + -celo·a *shake* > kicecelo·a *he dusts it, he brushes something off* (-celo·a does not otherwise occur); mo- *reflexive* + -mec *foot* + C_1V_1- + -celo·htok *stomping, shaking* > -momeccecelo·htok *he is stomping dust off his foot*; ki- *object indicator* + C_1V_1- + -či·no·a *put in fire* > kičiči·no·a *he singes it*; C_1V_1- + -picohtoya *was licking* > pipicohtoya *it was repeatedly licking*; ki·n-*them* + C_1V_1- + -pilo·htoya *was hanging* > ki·npipilo·htoya *he kept hanging them (same item) up*; C_1V_1- + -to·nia *make hot* > -toto·nia *really heat up*; mo- *reflexive* + -te·n *mouth* + C_1V_1- + -či·no·a *burn* > mote·nčiči·no·a *his mouth is burning (as with hot food)*; C_1V_1- + -wecka *laugh (once)* (seldom occurs) > wewecka *he laughs* (the normal form).

C_1V_1h- ∼ V_1h- (the latter occurs with vowel-initial roots) *multiplication of action but with variation, distributive action*: C_1V_1h- + -či·wa *make, do* > čihči·wa *construct (requiring many activities with one final goal)*; C_1V_1h- + -teki *cut* > -tehteki *chop (with strokes falling in various spots)*; C_1V_1h- + -nemi *live* > -nehnemi *walk about*; kal- *house* + C_1V_1h- + -či·wa *make, do* > kalčihči·wa *he builds a house*; C_1V_1h- + -welo· (occurs only with the reduplicative morpheme) > -wehwelo· *destroy (requiring much activity but one goal)*; C_1V_1h- + -pilo· *hang up* > -pihpilo· *hang different things up*; ki- *it* + C_1V_1h- + -toka *follow* > kitohtoka *he follows it*; ki- *it* + C_1V_1h- + -to·ka *plant* > kitohto·ka *he plants it everywhere*; ki·n- *them* + C_1V_1h- + -ma·wa > ki·nmahma·wa *he infects them*; V_1h- + -eko *test* > -eheko *test, take various proofs*; i·š- *face* + V_1h- + -eko *test* > -i·šeheko *judge*; C_1V_1h- + -celo· *shake once or dust* > -cehcelo· *really shake out*; C_1V_1h- + ne·l- *really* + -toka *follow* > -nehne·ltoka *really believe all of it*.

1.2.1.2. The primary formative suffixes occur in four relative positions as follows: -ni, -le·, -ta· occur in the first position after the root.

-ni ∼ -n (the latter occurring before a t-initial suffix) occurs with a series of unique bound roots and generally indicates a state of being or a condition in which the subject acts with its own initiative or under its own power: pata·ni *it flys*; molo·ni *it boils*; k^{w}ala·ni *it is angry*; tapani *it breaks*, (contrast kitapana *he breaks it*); koyo·ni *he digs a hole*; mito·ni *he sweats*; tata·ni *he earns*; tahtani *he asks*.

-le· ∼ -e· (-le· occurs following vowels and -e· occurs following consonants) appears to indicate a self-contained, intransitive or reflexive action. It occurs primarily with noun stems referring to color and, in such occurrences, is always followed by -wi (see below): ista·k *white* + -e· + -wi *become* > ista·ke·wi *it becomes white*; ti·l *black* + -le· + -wi *become* > ti·le·wi *it turns dark, it blackens*; i·š- *face* + -či·či· *red* + -le· + -wi *become* > i·šči·či·le·wi *he blushes*. It also occurs with the root -wa·l *come* and is followed by -wa: -wa·l *come* + -e· + -wa > -wa·le·wa *come toward*.

-ta occurs on some roots as a definite verbalizer, as a transitivizer, and, in some cases, indicating a state of being. Its precise significance is somewhat obscure in some instances, but the following examples may be cited: -weli *able* + -ta > -welita *like, enjoy*; -pa·ki *happy* + -ta > -pa·kita *state of being happy*; -kohkoči *really sleep* + -ta > -kohkočita *dream*. Compare also: -tasohta *love*; -ihso·ta *vomit*; -peta *rub, smooth*; -pata *change*; -wiwita *pull up by the roots*.

In the second position the formative-verbalizers -wi and -wa occur.

-wi ∞ -w (the latter occurs before -ti· of the third relative position) *become, be caused to have the quality of* occurs as a transitivizer for V or Vs and as both verbalizer and activizer for N or Ns: -šelo *separate* + -wi > -šelowi *cause to be separated*; -ko + -wa (see below) > -kowa *buy* contrasted with -ko + -wi > -kowi *cause to be purchased*; -pe·wa *herd, start* contrasted with -pe·wi *cause to be herded, started*; -ka·wa *desert* contrasted with -ka·wi *cause to be left*; -tapo *open* +

-wi > -tapowi *cause to be opened*; -tapohpo·l[8] *forgive* (noun form) + -wi > -tapohpo·lwi *cause to be forgiven*; -polo *lose* + -wi > -polowi *cause to be lost*; -mo *fear* + -wi > -mowi *cause to be fearful*; -ta- *light* + -wi > -ta·wi *cause to be lighted*; či·či·- *red* + -le· + -wi > -či·či·le·wi *blush, cause to become red of itself*; ti·l *black* + -wi > -ti·lwi *cause to be black*, compare also ti·l + -e· + -wi > -ti·le·wi *cause to blacken itself*; ista· *white* + -le· + -wi > -ista·le·wi *turn pale, become white*; -es *blood* + -wi > -eswi *cause to be bloody*; -ihsi *fast* + -wi > -ihsiwi *cause to hurry*; pi·na·wa *he is embarrassed* contrasted with -pi·na·wi *cause to become embarrassed*; ta·l *dirt* + -wi > -ta·lwi *cause to be dirt-covered*; cikawa·s *comb* + -wi > -cikawa·swi *cause to be combed*; wic- *thorn* + -wi > -wicwi *cause to be stuck, give an injection*; mo- *reflexive* + (tahto· *speak* + -wi) > -motahto·wi *defend oneself, cause oneself to speak, make excuses.*

-wa occurs as an indicator of a verbalized stem.[9] It may cause the stem to become transitive but also may indicate the active presence of a stated quality: -ka·wa *desert, leave*; -pe·wa *start, begin*; -kowa *buy*; -powa *count*; -čipa·wa *clean*; -i·šwa *sprout* (lit. *face appears*); -ewte·wa *go over there*; -pi·na·wa *be embarrassed*; ta·lne·šyo *powder, dust* + -wa > ta·lne·šyowa *it is dusty*; ta- *general object* + (sokiyo *muddy* + -wa) > tasokiyowa *it is muddy*; -čika· *strong* + -wa > -čika·wa *to make strong.*

In the third position -ti· *causative* occurs. It is also both a transitivizer of verbs, and a transitive verbalizer of nouns[10] and particles: -mowi *fear* + -ti· > -mowti· *cause to fear*; -miki *die* + -ti· > -mikiti· *kill, cause to die*; -maka *give* + -ti· > -makti· *cause to give, deliver*; -čo·ka *cry* + -ti· > -čo·kti· *cause to cry*; -ne·si *appear* + -ti· > -ne·šti· *show*; -mati *know* + -ti· > -mačti *teach, make to know*; -pah *medicine* + -ti· > -pahti· *cure*; -pi·na·wi *be embarrassed* + -ti· > -pi·na·wti· *embarrass*; -pa·ki *be happy* + -ti· > -pa·kti· *make happy*; či·wal[10a] *work* (Ns) + -ti· > -či·walti· *make to work*; tak^{w}al *food* (Ns) + -ti· > -tak^{w}alti· *cause to eat* (idiomatically *beat an animal*); čawak *greasy* + -ti· > -čawakti· *make greasy, grease*; tane·š *light* (Ns) + -ti· > -tane·šti· *light a way*; ihsiwil *the rush, the hurry* (Ns) + -ti· > -ihsiwilti· *cause to rush, hurry* (note that -wi occurs within the Ns); šo·ta·l *a burning* (Ns) + -ti· > -šo·ta·lti· *set afire*; ti- *we* + (se· *one* (N) + šiwi *year* (N) + -ti·) + -s *future* + -keh *plural subject* > tise·šiwti·skeh *we shall be there one year*; ye·k *perfect* (Pa) + -ti· > -ye·kti· *make straight, perfect, put in order.*

In the fourth position -li *benefactive* occurs. When -li occurs a member of Class 50 (see **2.1**) must also occur. Suffixation of -li will shorten any immediately preceding long vowel: -ne·šti· *show* + -li > -ne·štili *show to*, with inflection ni- *I* (sub.) + mic- *you* (ind. obj.) + i·n- *them* (dir. obj.) + Vs > nimici·nne·štili *I show them to you*; -ye·kmone·šti· *reveal oneself plainly* + -li > -ye·kmone·štili *reveal oneself plainly to*; -makti· *deliver* + -li > -maktili *deliver to*, with partial inflection mic- *you* (ind. obj.) + Vs > -micmaktili *deliver to you*; -ma· *hand* (Ns) + -k^{w}i *take* + -li > -ma·k^{w}ili *seize from, take from*; -mati *know* + -ti· (see above) + -li > -mačtili *cause to know, teach for another*; -pe·wi *cause to start, herd* + -li > -pe·wili *herd for*; -išta· *pay* + -wi (see above) + -li > -išta·wili *pay to, cause to be*

[8] Certain verb roots are nominalized by -l and may, in turn, be verbalized: tak^{w}a *eat* + -l tak^{w}al *food* + -ti· -tak^{w}alti· *make food.*

[9] Further investigation may reveal a common source historically between -wa and the stems ending in -oa as discussed by Garibay (op. cit., see also footnote 5.). However it is noted that in the perfect tense the derivational -wa is retained with the stem and -k *past tense* (see **2.2.1**) is added, whereas Garibay's discussion of -oa verbs indicates that the -a is lost when the perfect tense indicators (e.g. -k) are added. In this paper -a is considered a present tense indicator (see **2.2.1**).

[10] Short i and a are lost before this morpheme, and palatalization of consonants will occur when they precede this -ti·: y > č; c > š; s > š; t > č.

[10a] See fn. 8.

paid to; -ta·wi *to cause to be lighted* + -li > -ta·wili *light for*.[11]

1.2.2. Complex stems may occur in combinations of simple roots or stems, or roots or stems with secondary formatives -ti- and -ka·-. In Nahuat a simple root and a more complex combination will often function exactly alike as regards their distributions both with inflectional elements and in syntactical arrangements. Furthermore, in the combining of the various roots, certain ones will have peculiar relationships or ties that are stronger or more important than that with other elements in the same compound. In the discussion which follows there will be an attempt to indicate the degree of relationships by the use of brackets where helpful to the analysis. In the discussion we shall not distinguish between roots and stems, but simply refer to them as V, N, or Pa.

The head root is the final verb of a combination (exceptions occur in coordinate constructions described later). Roots preceding the head root may be objects, instruments or adverbial modifiers of this head root. These preposed elements may occur with inflectional or derivational affixes, and the head may be a derived form.

1.2.2.1. In forming compounds roots (or stems) may be joined by connectives or merely be juxtaposed; these are now discussed and illustrated. Compounds without connectives are presented first.

1.2.2.1.1. There is a small class of compounds involving auxiliary roots (Va) preceding the head (in coordinate relationship), indicating direction of movement, but not limited to this. These auxiliary roots are characterized by the loss of final vowel in compounds: wa·la *come* + k^{w}i· *take* > -wa·lk^{w}i· *take here, bring*; -tita·ni *send* + -kowa *buy* > -tita·nkowa *send to buy*; -tita·ni *send* + -tatawti *beg* > -tita·ntatawti *send to ask, beg*; -weli *able, can* + moli·ni *move* > -welmoli·ni *can move*. Note further that auxiliary roots may occur in multiple coordinate combinations with each other: -wa· la *come* + -tita·ni *send* + -kowa *buy* > -wa·ltita·nkowa *send here to buy*; compare also -wa·la *come* + -tita·ni *send* > -wa·ltita·ni *send here*.

Formulae: Va + V = Vs, and Va + Va + V = Vs.

1.2.2.1.2. There is a small class of compounds composed of V + V in which the first root appears as a qualifier of the second root, the head of the construction. However, in these cases note that the final vowel of the first root is retained. In these constructions the first root is either tami *finish* or pe-wa *start*: -tami + -tekiti *work* > -tamitekiti *finish working*; {-tami + (ta- *general object* + [kal *house* + -pano· *pass*]) *visit*} + -h *preterite* > tamitakalpano·h *he finished visiting*; (-tami + -wihwi·teki *beat*) + -k *preterite* + -keh *plural subject* (preterite) > tamiwihwi·tekkeh *they finished beating*; (-tami + -tata *burn*) + (length of v + -s) *future* > tamitata·s *it will finish burning*; -pe·wa *start* + -tekiti *work* > pe·watekiti *begin working*; ni- *I* (sub.) + (-pe·wa + -wewecka *laugh*) + -k *preterite* > nipe·waweweckak *I began to laugh*.

The verb root -neki *want, desire* holds an almost unique position. It is the final root of the stem and any preceding root occurs with inflectional tense ending indicating a future action of the first root: -kihto·s *will say* + -neki > -kihto·sneki *want to say, mean*; ∅- *he* (sub.) + ta- *general object* + (-tewi·s *will fight* + -neki) > tatewi·sneki *he wants to fight*; ∅- *he* (sub.) + (koči·s *will sleep* + -neki) > koči·sneki *he wants to sleep*. Note that any inflectional change for the entire verb stem will be added to the stem as a whole; the included future tense indicator never changes: ni- *I* (sub.) + (-tak^{w}a·s *will eat* + -neki) + -k *preterite* > nitak^{w}a·snekik *I wanted to eat*.

[11] Some speakers use the uncommon form -lili interchangeably with -li. Note the following illustrations: miak (Ns) *much* + tio- *make to be* + -li > -miaktili- *multiply to or for one, to add to*, this may also occur as -miaktilili-, and also maktili- *deliver to* may occur as -maktilili-.

Another verb functioning similarly to -neki is -polo· *lose*. It is observed in the following example: -mowi·s *will fear, respect* + -polo· > -mowi·spolo· *lose fear or respect for*.

1.2.2.1.3. A more common pattern of compounding is noun,[12] as an instrument, object or modifier plus the verb to which it is preposed. The noun root occurs:

As an object or instrument: ši- *imperative* + mo- *reflexive* + (kʷa·- *head* + -tali *put*) > šimokʷa·tali *put it on your head!*; yo·l- *heart* + -čika·wa *encourage, strengthen* > -yo·lčika·wa *encourage*; el *mind, thought* + -namiki *meet* > -elnamiki *remember*; el *mind, thought* + -ka·wa *leave* > -elka·wa *forget*; kʷa·- *head* + -mo·ta *throw* > -kʷa·-mo·ta *throw at head*; to·č- *rabbit* + mo·ta *throw* > to·čmo·ta *hunt rabbits*; mec *foot* + čiko·nekʷiliti· *cause to be twisted* > -mecčiko·-nekʷiliti· *sprain ankle*; mec *foot* + -cecelo· *shake, stomp* > -meccecelo· *stomp foot*; yo·l- *heart* + -koko *sick, hurt* > -yo·lkoko *be sad, heart-sick*; mec *foot* + -tope·wa *urge, push* > -mectope·wa *kick*; ta·l *dirt* + -pačo *cover* > -ta·lpačo· *cover with dirt*; kʷa·- *head* + -tapo· *open* > -kʷa·tapo· *open top of*; naka *meat* + -teki *cut* > -nakateki *cut meat*; contrast with nakayoh *personal flesh* + -teki *cut* > -nakayohteki *cut flesh*; te·n *mouth* + -kʷi· *use* > -te·nkʷi·*argue, discuss*; kal *house* + -yeto *be located* > -kalyeto *reside*; te- *rock* + (ta- *general object* + -mo·ta *throw*) > -tetamo·ta *throw rock at*; mec *foot* + -tohtoka *follow* > -mectohtoka *follow footsteps*; (-pa·ki *be content* + -li·s *nominalizer*) + -maka *give* > -pa·kili·smaka *make happy*; tokoc *short* + -yeto *be located* > -tokocyeto *sit down (shorten oneself)*; tiko *place of fire* + -tila·na *pull out* > -tikotila·na *pull out of fire*; maya·n *hunger* + -miki *die* > maya·nmiki *die of hunger*; weweh *old* + -miki *die* > -wewehmiki *die of old age*; šiw *leaf* + -mikti· *kill* > -šiwmikti· *smother with leaves*; pi·l *child* + -tasohta *love* > -pi·ltasohta *love the child*; yo·l- *heart* + -tasohta *love* > -yo·ltasohta *love with all of the heart*; tamamal *a bulk to be carried* + -ki·šti· *take out* > -tamamalki·šti· *to unload*.

With one morpheme, ma· ~ mah *hand*, there appears to be a formal distinction as to whether it occurs as an instrument or object. As an instrument it occurs: mah + -maga *hit* > -mahmaga *strike with hand*; mah + -pačo· *cover* > -mahpačo· *cover with hand*; mah + -ča·na *guide* > -mahča·na *lead with hand*. As an object it occurs: ma· + -kehcoma *bite* > -ma·kehcoma *bite the hand*; ma· + -toto·nia *warm* > -ma·toto·nia *warm hands*.

As a prepositional type of modifier showing location in real or logical space: ahko *upward place* + (ta- *general object* + -mo·ta *throw*) > -ahkotamo·ta *throw (it) up in the air*; seko *place* + -ta·li *put* > -sekota·li *put to one side*; co·l *surrounded* +-mikti· *kill* > -co·lmikti· *be pressed hard by a crowd*; ahkopa *high place* + -ti·ta·ni *send* > -ahkopati·ta·ni *send (it) up*; pa·n *on, down* + -weci *fall* > -pa·nweci *fall on, fall down*; on- *over there* + -ka·wa *leave* > -onka·wa *leave over there*; se·n- *together* + -tehko *ascend* > -se·ntehko *go up together*; kala·n *outside* + (ta- *general object* + -mo·ta *throw*) > -kala·ntamo·ta *throw (it) out*.

As a type of adjectival element: we·yi *big* + -či·wa *make* > -we·yiči·wa *exaggerate, brag*; kʷa·l *good* + -keca *stand* > -kʷa·lkeca *recommend, praise*; kʷa·l *good* + -ka·wa *leave* > *leave (him) contented*.

The following illustrations will show some additional combinations of nouns functioning as objects (O), instruments (I), and prepositional (P) modifiers in stem formation: -te·n O/I *mouth* + (pa·n P *down* + -weco *fall*) > -te·mpa·nweco *let fall from mouth, refer to, speak of*; (keč O *neck* + -pa·c *squeeze*) + -miki *die* > -kečpa·cmiki

[12] A noun belongs to a class which occurs with affixes indicating possession, respect, or a distinguishing method of pluralization. Syntactically these may function as subjects, objects, adjective-adverb modifiers, pronominal elements, prepositions and numerals. Most of this class can be verbalized by formatives mentioned above, and most can occur as part of a verb stem either with or without connectives, depending on the meaning desired.

die of strangling; kalihtik P *inside the house* + -ti·tani *send* > -kalihtikti·tani *send them into the house*; tahto·l O *word* + (*i*·š- P *face, before* + -na·miki *meet, answer* > -tahto·li·šna·miki *to argue, confront with words*; ma· O *hand* + (i·š- P *face, before* + -no·ca *call*) > -ma·i·šno·ca *wave hand, signal to (someone)*; yeka I *nose* + (es I *blood* + -ki·sa *goes out*) > -yekaeski·sa *nose bleeds*; tahto·l O *word* + (te·n I *mouth* + -k^{w}ek^{w}epa *keeps turning*) > -tahto·lte·nk^{w}ek^{w}epa *argue*; mec O *foot* + [k^{w}ow I *wood* + (tepo·- I *metal, metal-like* + -tami *end, finish* > -tepo·tami *stumble*)] > -meck^{w}owtepo·tami *stumble on a piece of wood*; se·n P *all together* + (i·š- P *face, front, before* + -ita *look*) > -se·ni·šita *look into the faces of all*. The reverse pattern is also acceptable -i·šse·nita and has the same meaning.

From the foregoing illustrations there appears to be a pattern of verb composition with the following formula: ± N (O) ± N (I) ± N (P) + V = Vs. In presenting this formula it must be admitted that it is not always easy to distinguish between the functions of O and I, and further, in some cases it is only the position of a specific morpheme that will identify its function in a particular stem. That is: k^{w}a· *head or top* and i·š *face, front* could act as either O or P.

1.2.2.1.4. Particles[13] (Pa) may also occur with a V head: ye·k *fine, truly, perfectly* + -piya *have* > -ye·kpiya *guard*; ye·k *fine, well* + -či·wa *do, make* > -ye·kči·wa *do well*; ye·k *truly* + -tahto· *speak* > -ye·ktahto· *promise, speak truly or clearly*; ne·l *good, plenty* + -piya *have* > -ne·lpiya *have plenty*; ne·l *good, plenty* + -kiowi *rain* > -ne·lkiowi *rain plenty*; ne·l *good, very* + -tasese·ya *be cold* > -ne·ltasese·ya *be very cold*; ne·l *good, really* + -toka *chase, follow* > -ne·ltoka *believe*; ye·k *fine, completely* + (mo- *reflexive* + ne·štili *reveal to*) > -ye·kmone·štili *reveal oneself clearly to*; ne·nkah *in vain* + -čo·ka *cry* > -ne·nkahčo·ka *cry in vain*. Infrequently, amo *no* has been observed to occur as follows: ši- *imperative* + (amo *no* + -či·wa *do*) > šiamoči·wa *don't do it*. Normally amo occurs outside the verb complex.

Also the following particle-like roots occur bound to the verb (these have not been discovered occurring as separate words although some may occur with formatives as nouns or verbs): ta·- *negative* + -welita *like, enjoy* > -ta·welita *hate*; te·l- *forcefully* + -či·wa *do* > -te·lči·wa *curse*; te·l- *forcefully* + -iksa *step* > -te·liksa *kick*; na·l- *other side, across* + -kalaki *enter* > -na·lkalaki *enter straight ahead*. Note also: ye·k *really* + {[(i·š- P *face, front* + -k^{w}i· *use*) + -l *nominalizer*] + -ti· *verbalizer* > -i·šk^{w}i·lti· *have for an example*} > -ye·ki·šk^{w}i·lti· *really use for an example*.

Particles occur in verb compounds in the same relative order as the noun-preposition type modifier, and function in the same manner. There are, furthermore, certain roots which occur only in verb compounds, and which could be classified as either a Pa or a N, e.g. se·n- *together* could be considered as a N (P) or a bound Pa. Compare the following: -k^{w}ow O *wood* + (ye·k Pa *well* + -piya *have* > -ye·kpiya *guard*) > -k^{w}owye·-kpia *guard the lumber*; ye·k Pa *well, fine* + (te·n I *mouth* + -ka·wa *leave* > -te·nka·wa *speak*) > -ye·kte·nka·wa *promise*; yo·l O *heart* + (ye·k Pa *well, fine* + -ta·li *put*) > -yo·lye·kta·li *be at peace, protect oneself*; (tomi·n *money* + kaho·n *box* > tomi·-nkaho·n O *money box*) + (ye·k Pa *well, fine* + -piya *have*) > -tomi·nkaho·nye·kpiya *guard the money box*; se·n- P *all* + (ye·k Pa *well, fine* + -piya *have*) > -se·nye·kpiya *everyone guard well*. Note also the layers of immediate constituents in the following: ši- *imperative* + mo- *reflexive* + se·n P *all* + [yo·l O *heart* + (ye·k Pa *really* + -čika·wa *strengthen*)] + -ka·n *imperative plural* >

[13] A particle belongs to the class of words that may occur alone but never with inflectional elements. In this dialect some items will be included in the particle class that never occur alone but in such distribution in compounds that they may not be classed with primary formatives. Syntactically and semantically these elements occur as adverbial modifiers.

šimose·nyo·lye·kčika·waka·n *all of you really get in there and encourage each other*. Here it can be noted that the elements preceding the verb root enter the pattern in an orderly manner, each forming an immediate constituent with the entire unit of the stem which follows.

It is sometimes possible to different orders of elements preceding the verb base: kʷa·- O *head* + (ye·k Pa *really* + -tanemilia *think*) > -kʷa·ye·ktanemilia *have good judgement*, contrasted with ye·k + (kʷa·- + -tanemilia) > -ye·kkʷa·tanemilia *have good judgement*.

1.2.2.2. The connective -ti- (may alternate with -t- before stems with initial vowel) occurs as a connective between two verbs (V or Vs capable of functioning as separate syntactic units) and indicates they are coordinate elements. Semantically this connective indicates simultaneous action of the two verbs, "while". The formula V + -ti- + V = Vs is illustrated as follows: -čo·ka *cry* + -ti- + -yahki *left* > -čo·katiyahki *go away crying*; -čo·ka *cry* + -t- + -e·wa *arise* > -čo·kate·wa *get up crying*; -nehnen *walk* + -ti- + -weci *fall* > -nehnentiweci *walk very fast*; -tehko *ascend* + -ti- + -yahki *left* > tehkotiyahki *go ascending*; ši- *imperative* + (mo- *reflexive* + -ke·c *stand*) + -ti- + -weci *fall* > šimoke·ctiweci *stand up quickly! jump up!*; (-koko *be ill* + -h *class indicator*) + -ti- + -nemi *walk* > -kokohtinemi *walk while being ill*; (wi·n *drunk* + -ti· *verbalizer*) + -ti- + -nemi *walk* > -wi·nti·tinemi *walk while being drunk*; (ta- *general object* + -yowa·lo *go in circle* + -h *class indicator*) + -ti- + -nemi *walk* > -tayowa·lohtinemi *walk around*; (-te·mo *search* + -h *class indicator*) + -ti- + -nemi *walk* > -te·mohtinemi *walks while searching*; (se·nso·l *foolish* + -nen *walk*) + -ti- + -nemi *walk* > -se·nso·lnentinemi *walk about aimlessly*; -ki·š *go out* + -ti- + -weci *fall* > -ki·štiweci *leave hastily*; (kala·n *outside* + -ki·šti· *cause to go out* + -h *class indicator* > -kala·nki·šti·h *throw out*) + -ti- + -nemi *walk* > -kala·nki·šti·h-tinemi *go about throwing (them) out*; (tahto·l *word* + -maka *give* > -tahto·lmaka *advise*) + -ti- + -nemi *walk* > -tahto·lmakatinemi *go about giving advice*; (yo·l *heart* + -kʷala·n *be angry*) + -ti- + -nemi *walk* > -yo·lkʷala·ntinemi *walk along angrily*; -tata·kamat *obey* + -ti- + -nemi *walk* > -tata·kamattinemi *walk in obedience or calmly*. In all the examples encountered, the root following the connective is a root of motion.

1.2.2.3. The connective -ka·- (may alternate with -k- before vowel-initial stems) *with* may occur alone as N, or may occur as a substantive with possessive affixes. In the Vs it serves to connect subordinate N or V elements which modify the following Vs in an adverbial sense, i.e., the preposed N or V will describe the manner of performance of the head V: yo·li· *slow* + -ka·- + -tekiti *work* > -yo·li·ka·tekiti *work slowly*; -pi·na·w *embarrass* + -ka·- + -či·wa *do* > -pi·na·wka·či·wa *do it embarrassedly*; čika·w- *forcefully* + -ka·- + -cahci *shout* > čika·wka·cahci *shout loudly*; koko·š *sick, pain* + -ka·- + -tekiti *work* > -koko·ška·tekiti *work as in pain*; yo·li· *slow* + -ka·- + -e·wa *lift* > -yo·li·ka·e·wa or -yo·li·ke·wa *raise slowly*; kʷala·n *anger* + -ka·- + -nahnawati *order, command* > -kʷala·nka·nahnawati *order angrily*; ihsiw *fast* + -ka·- + -wa·la *come* > ihsiwka·wa·la *come quickly*; yo·li· *slow* + -ka·- + (se·n-*all, together* + -ti· *causative* + -li *benefactive*) > -yo·li·ka·se·ntili *slowly gather together*; (yo·l *heart* + -čika·w *strengthen*) + -ka·- + -tahto; *talk* > -yo·lčika·wka·tahto· *talk fearlessly*; yo·li· *slow* + -ka·- + -nemi *walk* > -yo·li·ka·nemi *walk slowly*; ičta *silent, secret* + -ka·- + (pa·n *down* + -kahka·wa *let*) > -ičtaka·pa·nkahka·wa *lower secretly*.

There is one special and rare distribution of -ka·- that must be noted. It may occur to indicate a special emphasis on the honorific morpheme when a single verb is employed and no other adverbial element occurs (-wa·l *come* + -wi *causative*) + -ka·- + -ci·no *respect* > -wa·lwika·ci·no *the honorable one comes, comes with respect*.

1.2.2.4. There are complex stems in

which several roots occur. Such a stem may contain juxtaposed roots and -ka·- and -ti- in the same construction. Where this occurs the adjacent roots and/or -ka·- always precede -ti- regardless of which verbal element is modified by the noun-adverb. Where the meaning is not clear syntactical arrangements outside the verb complex often resolve the ambiguities.

The adjacent roots and -ka·- combination will illustrate how all combinations continue to adhere to the formulae already established: ye·k Pa *very, really* + (tamat *calm, obedient* + -ka·- + -yah *go*) > -ye·ktamatka·-yah *go very peacefully*;[14] -insiw *quick* + -ka·- + (ma· I *hand* + [i·š- P *face, front* + -no·ca *call*]) > -ihsiwka·ma·i·šno·ca *quickly signal with hand*; -ihsiw *quickly* + -ka·- + (-wa·l *come* + -tahkʷilo·wili *write to* > -wa·ltahkʷilo·wili *write to have come*) > -ihsiwka·wa·ltahkʷilo·wili *hurriedly write to have come.*

The -ka·- and -ti- occurrences are now illustrated: čika·w *forceful* + -ka·- + -tahto·h *speak* + -ti- + -nemi *walk* > -čika·wka·tahto·htinemi *talk forcefully while walking*; yo·li· *slowly* + -ka·- + -cahci *shout* + -ti- + -wa·la *come* > -yo·li·ka·-cahcitiwa·la *come along slowly chanting, shouting*; yo·li· *slowly* + -ka·- + (tahto·l O *word* + -maka *give* > -tahto·lmaka *advise*) + -ti- + -nemi *walk* > -yo·li·ka·tahto·l-makatinemi *walk along slowly giving advice*; *%*- *he* (sub.) + ki·n- *them* (dir. obj.) + (ye·k *truly* -kihsiwka·tahto·lmakatinemi *walk along quickly advising* > ki·nye·-kkihsiwka·tahto·lmakatinemi *he walks along quickly giving them good advice*; ni- *I* (sub.) + ki·n- *them* (dir. obj.) + -ihsiwka·ma·i·-šno·ctinehnemiya > niki·nihsiwka·ma·i·šno·-ctinehnemiya *I walked around slowly signaling to them with hand.*

1.3. Ns, like Vs, may occur with verb affixes when indicating an equational relationship of Ns: ni- *I* (sub.) + isiwa·w *his wife* > niisiwa·w *I am his wife*; ti- *you* (sg. sub.) + notahto·hka·w *my agent* > tinotahto·hka·w *you are my agent*; ni- *I* (sub.) + ta·gat *man* > nita·gat *I am a man.*

Summary of Vs formulae: V = Vs; N/V/Pa + V = Vs; V + -ti- + V = Vs; N/V + -ka·- + V = Vs; N/V/Pa + N/V + -ka·- + V = Vs; N/V + -ka·- + V + -ti- + V = Vs; Ns = Vs when Ns occurs with subject marking morphemes. All of the above occur with the verb class marking affixes to be described.

2. The inflectional affix morphemes[15] that occur with verb stems include both prefixes and suffixes.

2.1. The prefixes of Nahuat verbs indicate subject, imperative, object, and honorifics and will be numbered in decades for convenience of reference. The decade will indicate the relative position from the stem outward, that is, Class 10 will occur nearest the stem and Class 60 will occur word initial, farthest from the stem. No data were recorded in which all orders occur on the same stem simultaneously. The general object and reflexive morphemes often function in derivational layers, that is a stem inflected with these morphemes may occur as one member of a compound, and the resulting stem may itself require an object. This fact permits two alternative analyses: (1) considering these morphemes at the inflectional level, as we do here; (2) considering them at the derivational level. Had the latter course been chosen a reduction of at least three orders of prefixes would have resulted but the derivational description would have been complicated considerably.

As previously stated (see footnote 4.), morphemes will be analyzed on the basis of their occurrence in the simplest combina-

[14] See **3** for a discussion of the stem alternants of the verb *go*.

[15] Among these affixes there are certain forms which could be described as a sequence of morphemes; however, for convenience and economy they are considered single morphemes. Among these are: -skia, -tok, -ti, -ki, -to, -ko, ki·n-, and the present honorific indicators.

tions, further complications will then be described the more easily as they are noted in more complex forms. The present analysis presents six orders of prefix classes.

Prefixes which occur in the first relative position, Class 10, indicate general, nonspecific objects, with no distinction in number. One of these must occur when the verb is transitive and no specific object is known:

Morpheme 11 ta- *non-personal, general object*: ta- + -mama *carry* > tamama *carry* (something); ta- + -kʷa *eat* > takʷa *eat* (*something*); ta- + -si·ko *endure* > tasi·ko *endure* (*something*); ta- + -hyowi *suffer* > tahyowi *suffer* (*something*); ta- + -tepi·ni *sting* > tatepi·ni *sting* (*something*); ta- + -koyo·ni *dig holes* > takoyo·ni *dig holes*.

Morpheme 12 te·- *personal, general object*: te·- + -mama *carry* > te·mama *carry* (*persons*); te·- + -kʷa *eat* > te·kʷa *eat* (*persons*) [referring to a wild animal].[16]

The morpheme which occurs in the second relative position, Class 20, is an honorific and occurs as dictated by cultural requirements. It indicates respect or politeness in speech.

Morpheme 21 o·n- *respect* is usually preceded by other morphemes, but has been noted word initial on limited occasions: ši- *imperative* + o·n- + -takʷa *eat* (*something*) > šio·ntakʷa *please eat, sir!*; ti- *you* (sub.) + k- *it* (obj.) + o·n- + -maka *give* > tiko·nmaka *you, sir, give it*; ši- *imperative* + ne·č- *to, for me* + i·n- *them* (obj.) + o·n- + -ka·wili *leave for* > šine·či·no·nka·wili *please, sir, leave them for me!* It must be noted that variation, at least in some idiolects, is permitted whereby this honorific may precede morphemes of the third and fourth relative positions. Illustrations of o·n- preceding the morpheme of the third relative position: ti- *you* (sg. sub.) + ne·č- *to, for me* + o·n- + i·n- *them* (obj.) + -ne·štilih *show* > tine·čo·ni·nne·štilih *you, sir, showed them to me*; ši- *imperative* + mo- *reflexive* + o·n- + i·n- *them* (obj.) + -ta·lili *put on* > šimoo·ni·nta·lili *please, sir, put them on yourself* (also may occur as šimoi·no·nta·lili). Illustrations of o·n- preceding the morpheme of the fourth relative position: ni- *I* (sub.) + mic- *to, for you* (sg.) + o·n- + mo- *reflexive* + -ne·štili *reveal to* > nimico·nmone·štili *I present myself to you, sir*.

The morpheme which occurs in the third relative position, Class 30, indicates object and occurs only if the stem contains -li *benefactive* (see **1.2.1.2**). A member of Class 40 or of Class 50 is obligatory when the morpheme of Class 30 is present.

Morpheme 31 i·n- *third person plural object* is the only member of Class 30. Morphemes indicating other persons have not been observed in this position, they appear to be specified always syntactically: ši- *imperative* + ne·č- *to, for me* + i·n- + -ka·wili *leave for* > šine·či·nka·wili *leave them for me!*; ∅- *he* (sub.) + mic- *to, for you* (sg.) + i·n- + -wa·lti·tanili·s *will send* > mici·nwa·iti·tanili·s *he will send them to you*; ti- *you* (sg. sub.) + ne·č- *to, for me* + i·n- + o·n- *respect* + -wa·lpe·wiliti *come to herd here* > tine·či·no·nwa·lpe·wiliti *you, sir, are coming to herd them here for me*; tame·č- *we* (sub.) *to you* (pl.) + i·n- + -maka *give* > tame·či·nmaka *we give these to you* (*pl.*). Morpheme 31 had not been observed to occur in the same construction with Morpheme 56.

The morpheme which occurs in the fourth relative position, Class 40, indicates either direct or indirect object, depending on contextual requirements. It may occur alone indicating object, in the absence of either members of Classes 30 or 50, or it may co-occur with morphemes of either of these two classes. However, members of

[16] There are a few cases where ta- has become a part of the stem thus allowing te·- to occur preposed to it. This points up the variable factor of inflection-derivation that occurs in Nahuat (see fn. 4.). Examples: te·- *general object* (*personal*) + (ta- *general object* (*non-personal*) + powia *tell* > -tapowia *recount*) > te·tapowia *tell things to people as a story teller*.

Subject-Object Relation Chart[17]

Object (50)	1-sg. ne·č-	2-sg. mic	3-sg. ki-∼k-	1-pl. te·č-	2-pl. name·č-∞ -ame·č-	3-pl. ki·n-
Subject (60)						
1-sg. ni-∞	(nimo-)	nimic-	nik- niki-	(no occurrence)	name·č-	niki·n-
2-sg. ti-	tine·č-	(timo-)	tik- tiki- (mo-)	tite·č-	(no occurrence)	tiki·n-
3-sg.	ne·č-	mic	ki-∼k-	te·č-	name·č-	ki·n-
1-pl. + suffix ti-∞t-	(no occurrence)	timic-	tik- tiki-	(timo-)	tame·č-	tiki·n-
2-pl. + suffix nan-∞ta-	nanne·č-	(no occurrence)	nanki- nank-	tate·č	(nanmo-)	nanki·n- (mo-)
3-pl. + suffix	ne·č-	mic-	ki- k-	te·č-	name·č-	ki·n-

Classes 30, 40, and 50 never occur simultaneously.

Morpheme 41 mo- *reflexive* indicates reflexive reference to the subject and the presence of an object, or it may imply a passive construction: mo- + -takʷa *eat (something)* > motakʷa *get food for oneself*; mo- + -či·wa *do* > moči·wa *happen*; ti- *you* (sg. sub.) + te·č- *to, for us* + mo- + -ne·štilia *reveal, show* > tite·čmone·štilia *you show yourself to us*; mo- + -mačti· *learn, study* > momačti· *study*; ∅- *he* (sub.) + mo- + i·n- *them* (obj.) + -ne·štilia *reveal, show* > moi·nne·štilia *he shows them to himself*; ∅- *he, they* (sub.) + ki- *it* (obj.) + mo- + -ma·patiliah *exchange, trade in behalf of* > kimoma·patiliah *they trade it for themselves*. In these data it is noted that mo- may occur preposed to i·n- (31) but not preposed to ki·n- (56).

Morphemes which occur in the fifth relative position, Class 50, indicate object. The subject indicators, which occur in the sixth position, and these object indicators have an interaction that is peculiar to themselves regardless of what other prefixes occur. These combinations are shown in the accompanying chart. Members of Class 50 are shown on a horizontal axis and members of Class 60 on a vertical axis. At the intersection of the axis the occurring sequences or fused forms of the two are shown. When the two axes involving the same person and number intersect the form consists of the subject pronoun plus mo- *reflexive* (41).

If the stem contains -li *benefactive* (**1.2.1.2**) Class 50 marks an indirect object, even though other object markers are not present.

Members of Class 50 are Morpheme 51 ne·č- *first person sing. object*: ∅- *he* (sub.) + ne·č- + -maka *give* > ne·čmaka *he gives me*; ∅- *he* (sub.) + ne·č- + i·n- *them* (obj.) + -te·makilih *delivered* > ne·či·nte·makilih *he delivered them to me*; nan- *you* (pl. sub.) + ne·č- + mo- *reflexive* + -ne štilihkeh *appeared* > nanne·čmone·štilihkeh *you appeared to me, you presented yourselves to me*.

Morpheme 52 mic- *second person sing. object*: ni- *I* (sub.) + mic- + o·n- *honorific* + -ilis *will tell* > nimico·nilis *I will tell you, sir*;

[17] It would be possible to analyze ni- *1st singular*, as ni- ∞ n- rather than the way shown on the chart.

Note the use of mo- (morpheme 41) where the person-number categories intersect.

The distribution of morphologically conditioned alternants can be found on the chart; the distribution of phonologically conditioned variants is mentioned when the morpheme is described.

Ø- he (sub.) + mic- + -ita *see* > micita *he sees you*; ni- *I* (sub.) + mic- + i·n- *them* (obj.) + o·n- *honorific* + -maka *give* > nimici·no·nmaka *I give them to you, sir.*

Morpheme 53 ki- ∼ k- (k- occurs before vowel-initial stems or when preceded by a prefix of the shape CV) *specific singular object* (either personal or impersonal): *Ø- he* (sub.) + k- + ihto·a *say* > kihto·a *he says something*; ni- *I* (sub.) + k- + -mamma *carry* > nikmama *I carry it*; *Ø- he* (sub.) + ki- + -tami·s *will finish* > kitami·s *he will finish it.*

Morpheme 54 te·č- *first person plural object*: *Ø- he* (sub.) + te·č- + -ita·s *will see* > te·čita·s *he will see us*; ti- *you* (sing. sub.) + te·č- + -wi·ka·s *will bring* > tite·čwi·ka·s *you will bring us.*

Morpheme 55 name·č- ∞ ame·č- (see preceding chart for distribution of allomorphs) *second person plural object*: *Ø- he* (sub.) + name·č- + -ita·s *will see* > name·čita·s *he will see you* (*pl.*); t- *we* (sub.) + ame·č- + -nohno·ca·skeh *will talk* > tame·čnohno·ca·skeh *we will talk to you* (*pl.*); *Ø- he* (sub.) + name·č- + i·n- *them* (obj.) -ne·štilia *show to* > name·čne·štilia *he shows them to you* (*pl.*) (this form may also be glossed *I show them to you* (*pl.*)).

Morpheme 56 ki·n-[18] (possibly a complex unit, see fn. 15) *third person plural object*: ni- *I* (sub.) + ki·n- + -maka *give* > niki·nmaka *I give them*; *Ø- he* (sub.) + ki·n- + -ka·wak *left* > ki·nka·wak *he left them*; *Ø- he* (sub.) + ki·n- + mo- *reflexive* + -ne·štilih *revealed* > ki·nmone·štilih *he revealed himself to them.*

Morphemes which occur in the sixth relative position, Class 60, indicate personal subjects and imperative. A plural indicator suffix occurs when any plural subject morpheme of Class 60 is present.

Morpheme 61 ši- ∼ š- (the latter occurs before vowel-initial following morphemes, and, optionally elsewhere in rapid speech) *imperative*: ši- + -wi·ki *come* > šiwi·ki *come!*; ši- + ki·n- *them* (obj.) + o·n- *honorific* + -maka *give* > šiki·no·nmaka *please, sir, give these!*; ši- + mo- *reflexive* + i·n- *them* (obj.) + -ta·lili *put on* > šimoi·nta·lili *put them on yourself!*

Morpheme 62 ni- ∞ *Ø-* (the latter occurs only with morpheme 55) *first person singular subject*: ni- + ki·n- *them* (obj.) + -itak *saw* > niki·nitak *I saw them*; ni- + mo- *reflexive* + -se·wi *rest* > nimose·wi *I rest myself*; *Ø-* + name·č- *you* (pl. obj.) + -maka *give* > name·čmaka *I give you* (*pl.*) (in cases where this form could be understood *he gives you* (*pl.*) the ambiguity would be removed syntactically). This morpheme and morpheme 65 would not occur with an honorific (Class 20) except in joking.

Morpheme 63 ti-[19] *second person singular subject*: ti- + -wa·la·s *will come* > tiwa·la·s *you will come*; ti- + ki·n- *them* (obj.) + -pano·s *will pass* > tiki-npano·s *you will pass them*; ti- + ne·č- *to, for me* + i·n- *them* (obj.) + o·n- *honorific* + -kowili·s *will buy* > tine·či·no·nkowili·s *you, sir, will buy them for me.*

Morpheme 64 *Ø-* *third person singular subject.* This morpheme may be pluralized by suffixes 412, 511.[20] *Ø-* + -motalo·a *run* > motalo·a *he runs*; *Ø-* + -motalo·a *run* + -h *plural* > motalo·ah *they run*; *Ø-* + ki- *it* (obj.) + -tapačo·a *cover* > kitapačo·a *he covers it*; *Ø-* + ne·č- *me* (obj.) + -ne·štilia *show* > ne·čne·štilia *he shows me.*

Morpheme 65 ti- ∞ t- (the latter occurs

[18] It would be possible to consider ki·n- and i·n- as the same morpheme, the allomorphs depending on the position class in which each occurs. They are separated, however, because of the lack of parallels with other object indicators. Also o·n- (morpheme 21) has been observed preceding i·n- but never ki·n- or other members of Class 50.

[19] Croft, op. cit., p. 275, includes this morpheme and morpheme 65 in the same morpheme, we consider them distinct though they are homophonous.

[20] It would of course be possible to set up two zero morphemes: one for 3rd per. sing. and one for 3rd per. pl. This, however, seems unnecessary.

only when followed by morpheme 55) *first person plural subject.* The simultaneous occurrence of a plural suffix is obligatory: ti- + -takʷa·ti *go to eat* + -h *plural* > titakʷa·tih *we go to eat*; ti- + ki·n- *them* (obj.) + -ita *see* + -h *plural* > tiki·nitah *we see them*; t- + ame·č- *you* (pl. obj.) + -kahka·wa·s *will release* + -keh *plural* > tame·čkahka·wa·skeh *we will set you free.*

Morpheme 66 nan- ∞ ta- (the latter occurs only with morpheme 54) *second person plural subject.* The simultaneous occurrence of a plural suffix is obligatory: nan- + -wi·c *come* + -eh *plural* > nanwi·ceh *you (pl.) come*; nan- + ne·č- *to, for me* + i·n- *them* (obj.) + -po·liwi *lose* + -h *plural* > nanne·či·npo·liwih *you lose them for me*; ta- + te·č- *us* (obj.) + -maka *give* + -h *plural* > tate·čmakah *you give us.*[21]

2.2. There are four position classes of suffixes indicating tense-aspect, honorifics, and plural.[22] For convenience of reference the relative position of suffixial morphemes will be indicated by centuries from the stem outward, with tens indicating subclasses of morphemes within a given position, and units indicating individual morphemes. Suffixes are now presented and illustrated.

2.2.1. The following morphemes occur in the first relative position, Class 100, and indicate present, simple past, and anonymous plural present.

On the basis of their occurrence with morphemes 111 and 112, stems may be divided into two classes: Class K and Class H. Class H is further subdivided into two classes. Class K occurs with allomorph -k of morpheme 112 and with allomorph -∅ of morpheme 111. Class H occurs with allomorph -h of morpheme 112 and with both allomorphs of morpheme 111 (yielding two subclasses).

Morpheme 111 -a ∞ -∅ *present tense.* Allomorph 111.1 -a occurs with Class H Vs only:[23] motalo·a *he runs*; kima·nelo·a *he tells jokes*; kipa·nti·a *he suspects it*; moi·se·wia *he dares, risks.* Allomorph 111.2 -∅ occurs with a subclass, limited in number, of Class H Vs: kili *he says*; tamama *he carries*; takʷa· *he eats*; (note that in the latter two illustrations the final /a/ is part of the Vs). It also occurs with all the members of Class K: kimaka *he gives it*; moma·posteki *he breaks his arm*; kika·wa *he leaves it*; a·ki *it fits.*

Morpheme 112 -h ∞ -k *preterite tense.* Allomorph 112.1 -h occurs with all members of Class H:[24] nehnemih *he walked*; kiši·tih *he awakened him*; motalo·h *he ran*; kita·wilih *it lighted for him*; sani·lohkeh *they told stories*; mowi·ntihkeh *they got drunk.* This morpheme occurs on a stem-formative level with derivational function when verbs of Class H are followed by the connective -ti- in compounds: -ko·loh *making curves* + -ti- + -nemi *walk* > ko·lohtinemi *go along in a weaving walk*; ∅- *he* (sub.) + (-čoloh *flee* + -ti- + -nemi *walk*) + -∅ *present tense* > čolohtinemi *he goes along furtively.* Similarly, it also occurs with the present continuative 211, the continuative 213, the honorifics 221, and members of the 230 series, the remote past 212, and the dubious future 323. Its listing here as an inflectional morpheme is somewhat arbitrary and accounts, in part, for some morphemes being in higher-numbered position classes. Examples of 112.1 with the morphemes listed above are given below: with 211 paša·lo·htok *he is passing*; with 213 tekpo·htotikah

[21] This analysis of six relative positions of prefixes records the accords with Nahuat speech in the immediate environment of Zacapoaxtla, Pue., Mexico, but it should be noted that speech of Cuetzalan, twenty miles from Zacapoaxtla and within the bounds of the "t" dialect area, there is a seventh position containing o- *preterite.* This is similar to "Classical" Nahuatl. See Garibay, op. cit., p. 34.

[22] It would also be possible to set up three modes for Nahuat: indicative, imperative, and contingent. Imperative is indicated by morpheme 61, contingent by particles (see **4**), and indicative by a lack of these morphemes.

[23] For illustrative purposes we use the simplest verb forms.

[24] All Spanish borrowings enter this class: kanta·roh *he sang*; marča·roh *he marched.*

he (the respectable one) is replanting; with 221 šio·nmota·lihci·no *please, sir, be seated*; with 212 kiše·lihka *he received it.*

Allomorph 112.2 -k occurs with all members of Class K: motomak *he untied himself*; kiči·wak *he did it*; kipi·škak *he peeled it*; kipe·wkeh *they started it.*

Morpheme 113 -lo *indefinite person*: takʷalo *they (indefinite) are eating*; čo·kalo *they (indefinite) are crying.* Though rarely used it has also been observed to occur with 324 *future* and 211 *present continuative*: kočilo·s *they will sleep*; takʷalo·tok *they (indefinite) are eating now.*

2.22. The following morphemes occur in the second relative position, Class 200:[25]

Morpheme 211 -tok (see fn. 15) *present continuative*, may be a complex form but is here considered as a unit morpheme: kawantok *it is burning*; pa·lti·štok *it is becoming wet*; kitemo·lti·htok *he is making it go down*; mose·wihtok *he is resting.*

Morpheme 212 -ka *remote past*: kitewihka *he fought it*; kitamihka *he finished it*; kičipa·wka *he cleaned it*; ahsika *he arrived.*

Morpheme 213 -to[26] *continuative* never occurs word-final: takʷahtotikah *he (the honorable one) is eating*; tehkototikah *he (the honorable one) is going up*; takʷahtoti *he is going to eat*; tehkototi *he is going to arise*; takʷahtoki *he is coming to eat*; tehkotoki *he is coming here to get up*; takʷahto·s *he will be eating*; tehkoto·s *he will be ascending*; takʷahto·skia *he would be eating*; tehkoto·skia *he would be ascending*; takʷahtoya *he was eating*; takʷahtoni *if he had been eating.*

Morpheme 221 -ci·no ~ -ci·noh (the latter occurring when final or followed by /t/ or /k/)[27] *honorific*[28] takʷahci·no·s *he (the honorable one) will eat*; takʷahci·noh *he (the honorable one) ate*; occurrences of exaggerated honorific forms have been observed (see also morpheme 311) takʷahci·nohtikah *he (the very honorable one) eats.*

2.2.3. The following morphemes occur in the third relative position, Class 300:

Subclass 310 contains a morpheme of complex form that indicates present tense and honorific reference.

Morpheme 311 -tikah ∞ -tikat (the latter occurs before the plural morpheme) *present honorific*: kimakatikah *he (the honorable one) gives it*; kimamahtikah *he (the honorable one) carries it*; kimakatikateh *they (the honorable ones) give it*; kimamahtikateh *they (the honorable ones) carry it.*

Subclass 320 contains a series of morphemes indicating notions of time and aspect.

Morpheme 321 -ya *past customary action*: tamamahtoya *he was carrying*; kipiyaya alternant form kipiaya *he had it (for a while)*; kikʷehso·aya *it molested him habitually.* (Note in the final example that -a 111.1 is not lost but shares with -ʔ 111.2 the pattern of derivational-inflectional fluctuation; compare also motalo·aya *he used to run* and kitewiaya *he used to fight*).

Morpheme 322 -ni *past contrary to fact*: takwani *if he had eaten*; kimakatoni *if he had been giving it.*

Morpheme 323 -ti *dubious future*: In addition to the difference in meaning, this morpheme is distinguished from 331 by the occurrence of 121.1 immediately preceding it with Class H verbs: kimakati *if he should give it*; kimamahti *if he should carry it*; kimakatoti *if he should be giving it*; kimamahtoti *if he should be carrying it.*

[25] Generally speaking all the affixes of this class occur with all stems; we will mention instances where this is not the case.

[26] For some morphemes the series of examples will be chosen from one or two regular verbs in order to clearly present the occurrences of the particular morphemes, but this does not imply any limitation on the number of stems with which it can occur.

[27] Pittman, R. S., Nahuatl Honorifics, IJAL 14. 236–39 (1948), refers to five ranks of honorifics. In this dialect only a few vestiges remain and are merely forms of politeness rather than distinguishing grades of social honor.

[28] An alternate analysis could interpret this -h as being related to 112.1, but that would introduce distributional complications involving 112.1.

Morpheme 324 -V· + -s *simple future.* This morpheme is composed of two features: lengthening of the preceding vowel and suffixing -s: kikehke·lo·s *he will make fun of the other*; kitawe·lita·s *he will hate the other*; kikehke·lo·to·s *he will be making fun of the other*; kitawe·licto·s *he will be hating the other*; kimakaci·no·s *he (the honorable one) will give it.*

Morpheme 325 -V· + -skia *conditional,* (see fn 15) kimaka·skia *he would give it*; kili·skia *he would say it*; kimakato·skia *he would be giving it*; kilihto·skia *he would be saying it.*

Subclass 330[29] affixes indicate motion away from the speaker, such motion including the intent to act; and motion toward the speaker, such motion including the intent to act.

Morpheme 331 -ti *go to act*: kimakati *he goes to give it*; takʷati *he goes to eat*; kimakatoti *he is going to give it*; takʷatoti *he is going to eat*; kimakati·w *he will go to give it*; takʷati·w *he will go to eat*; kimakatoti·w *he will be going to give it*; takʷatoti·w *he will be going to eat.*

Morpheme 332 -to *went to act*: kimakato *he went to give it*; takʷato *he went to eat*; kimakatoto *he was going to give it*; takʷatoto *he was going to eat.*

Morpheme 333 -ki *come to act*: kimakaki *he comes to give it*; takʷaki *he comes to eat*; kimakatoki *he is coming to give it*; takʷatoki *he is coming to eat*; kimakaki·w *he will come to give it*; takʷaki·w *he will come to eat*; kimakatoki·w *he will be coming to give it*; takʷatoki·w *he will be coming to eat.*

Morpheme 334 -ko *came to act*: kimakako *he came to give it*; takʷako *he came to eat*; kimakatoko *he was coming to give it*; takʷatoko *he was coming to eat.*

[29] Subclass 330 could be analyzed as consisting of four morphemes (as here) but with different compositions: t- *motion from the speaker*, k- *motion toward the speaker*, -i- *unactualized action*, -o- *actualized action*. However, it seems equally valid and more convenient to consider them as units.

2.2.4. The following morphemes occur in the fourth relative position, Class 400:

Morpheme 411 -V· + -w *future*[30] occurs only with morphemes 331 and 333. For illustrations see the above section.

Morpheme 412 -ka·n *plural subject* indicates a mode other than the indicative: šitakʷa *eat!*, šitakʷaka·n *you (pl) eat!*; šikmakatoka·n *you (pl.) be giving it!*

2.2.5. The morpheme in Class 500 always closes the verb construction. It is placed in Class 500 since one of its allomorphs may follow 411.

Morpheme 511 -h ∞ -eh ∞ -keh *plural subject* (-keh occurs when 511 immediately follows morphemes 112 -h ∞ -k, 221 -ci·noh, and 324 -V·+ -s; -eh occurs when 511 immediately follows 211 -tok, 311 -tikah, 411 -w, and any stem ending in a consonant; -h occurs in all other positions where 511 may occur): takʷahkeh *they ate*; kimakakkeh *they gave it*; takʷahci·nohkeh *they (the honorable ones) ate*; tehkotokeh *they are ascending*; kimakatikateh *they (the honorable ones) give it*; takʷati·weh *they will go to eat*; yoweh *they go*; takʷah *they eat*; tehko·skiah *they would ascend.*

3. The preceding discussion has dealt entirely with regular verbs. In this dialect there are only two irregular verbs.

The morpheme wica ∞ wa·la ∞ wiki *come*, a Class H stem, is distinguished from the regular verbs in that the allomorph wica occurs in the simple present indicative, wiki occurs in the simple present of the non-indicative modes, and wa·la occurs in all other situations. Some speakers use wa·la in the plural of non-indicative modes. Examples: wica *he comes*; wa·lahtok *he is coming*; wa·lahto·s *he will be coming*; wa·lak *he came*; šiwiki *come!*; šiwikih or šiwa·laka·n *you (pl.) come!* Note the occurrence of 511 as well as 412 in the two latter examples.

The morpheme (yowi ∼ -ow ∼ yow-) ∞

[30] This morpheme could, of course, be considered an allomorph of 324.

(ya ~ -a) *go*, a Class H stem, is distinguished from the regular verbs in that the allomorphs (yowi ~ -ow ~ yow-) occur in the simple present indicative and the simple present singular of non-indicative modes. The phonological variants occur as follows: yowi *he goes* (without affixes); yow- with 511 yoweh *they go*; -ow with a member of Class 60 (other than zero) niow *I go*, šiow *scram!*

The allomorphs (ya- ~ -a) occur in all other situations. The distribution of the phonological variants is: ya- occurs word-initial, -a occurs in other environments. Thus: ya·s *he will go*; yahtok *he is going*; šiaka·n *you (pl.) scram!*

One final irregularity for this stem occurs in the simple past (yahki ~ -ahki) ∞ (yeh- ~ -eh-). The former pair are singular the latter plural: niahki *I went*; yahki *he went*; tiehkeh *we went*; yehkeh *they went*. Even this irregularity is somewhat regularized by some speakers in which the stem for the plural is yah instead of yeh.

There are two other stems, both Class K, which are somewhat irregular.

ye- ~ -e *to be in a certain location* (ye- occurs word initial, -e elsewhere). There is no simple present, past, remote past, or future for this stem, but a continuative must occur with any of these morphemes: yetok *it is located*; nieto·s *I will be there*; yetoya *he was accustomed to being there*; šieto *be there!*

o·nga- *there is, or does exist* does not occur with the present tense. In addition some speakers do not use it with a plural suffix. Examples: o·ngak *there is*; o·nga·skeh *they will be*; o·ngaya *there was accustomed to be.*

4. There are certain particles which occur outside the verb but whose relationship to the verb is similar to that of an affix. A complete treatment of verbs would not be complete without mentioning them, though they will not be treated in detail.

The following precede the verb; other words are permitted between the two:

mah *permissive* functions as a non-second person imperative: mah tioweh *let's go*; mah takʷati *let him go to eat.*

ta· introduces a dubitative statement or an "if-clause": ta· i·n ta·gat wa·la·s *if the man comes.*

še· and ša· (undistinguished as to meaning in the present stage of analysis) seem to imply that the statement is doubtful: amo nikmati še· [or ša·] kʷelita *I don't know whether he will like it or not.*

koš introduces an interrogative: koš i·n ta·gat wa·lah *Has the man come?*

The following particles come after the verb, and, although they have been observed with other words intervening, they occur most frequently as enclitics on the verb:

ok *again*: wa·lah-ok *he came again*; kočtok-ok *he is sleeping again.*

ya *already* (probably from Spanish): kimakak ya *he already gave it*; titakwahkeh ya *we have already eaten.*

sah *just that much, or that's all*, may follow certain verbs but it also plays a unique part in that it may occur implying that the preceding is a predicate noun: wa·lah nikan sah *it came just to here*; yehwa sah *that's all.*

NOTES AND REVIEWS

Linguistics[1]

Robert P. Stockwell

Linguistics is a discipline which has implications for a variety of established fields in rather surprising ways. It is not really a new discipline, though the last thirty years have seen it refine and sharpen its tools to such an extent that scholars outside the specialty often consider it formidable and unapproachable. Nor is it properly a departmental discipline: No language department can fully contain it, for it takes all language as its subject; cultural anthropology has contributed much to it, but linguistics is a tool through which the anthropologist can approach ethnology and the like—linguistics is the way in to the language of a culture, a toll charged before tasting of richer fruit; the study of older literatures long nurtured much of the research that linguistics includes, but philology, at its best, excludes serious problems that belong in the full study of language; philosophy and logic have looked into the meaning of language, but their consideration of its formal structure has left large areas unexplored—to say nothing of leaving unsettled the problem of meaning itself; departments of speech have encouraged research into the phonetic aspects of linguistic behavior, but their concern with precise physiological and acoustic details has obscured questions of structured psychological reality even in the systems of sounds; mathematics has contributed information theory and new lines of investigation into the basic nature of communication, but not all of language has yielded to quantification. One might go on to mention as touching upon, contributing to, or partaking of linguistics such diverse fields as acoustic aesthetics—the list is a long one. The striking fact is that the links between linguistics and these many fields are not tenuous ones: in every instance suggested above, specific and often large-scale research projects are either now in progress or have been found productive within recent years.

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On the History of Island-Carib Consonantism

Douglas Taylor

It is sometimes said that American languages 'have no history'; and indeed it is not surprising if few of them show much in the way of structural change over the comparatively short period of time that has elapsed since they were first recorded. In this respect, Island Carib appears to be an exception; and perusal of some material from 19th-century records of the Dominican, Vincentian and Central American dialects, for the most part unpublished and kindly made available to me by W. C. Sturtevant of the Bureau of American Ethnology, shows certain phonetic changes to be even more recent than I had supposed. Since it is unlikely that similar developments, some of which obscure regular correspondences resulting from soundshifts, should have occurred in the history of no other language, it may be worth making yet another attempt to explain their evolution in this one.[1]

Fr. Raymond Breton's extensive record of Island Carib was made in Dominica and, to a lesser extent, Guadeloupe between 1635

[1] See also Word 11.245-53 & 420-23, and Word 14.71-83. These papers adduce some evidence from the early period not repeated here; but at the time that they were written, I had not seen a part of the 19th-century material discussed below.

and 1654, and published at Auxerre in 1664, 1665, 1666 and 1667.[2] A missionary report for the year 1647, written in Guadeloupe, mentions Dominica, Martinique, St. Vincent and Grenada as then being the other islands 'esquelles on peut travailler et les habitants desquelles ont une mesme langue';[3] and in what follows I shall assume, though I cannot prove, that the phonemic system of this language was the same at that time in St. Vincent as in Dominica.

The segmental phonemes of the dialect described by Breton appear to have been: m, b ([b] and [p]; the latter variant being heard only, but by no means always, in Anlaut), p (aspirated [pʰ] and affricated [pφ]; the latter variant being heard only, but by no means always, before a following /u/), n, n (aspirated [nʰ]), d (almost always voiceless [t], and heard very rarely as voiced [d]), s (hushing [š] and, in some words with only some speakers, hissing [s]), l, r, g (voiceless [k] and voiced [g]; the latter variant being heard only, but by no means always, in medial positions), h, i, e, a, o ([ö] and [ə] according to Breton; but possibly as today in the Central American dialect, whose segmental phonemes are listed below), u ([o], [u] and, when non-syllabic before /i/ or /e/ [u̯]). What Breton sought to convey by his use of double letters such as -tt-, -nn-, -ll- is not clear to me; but his inconsistency in using them makes it unlikely that they represent phonological geminates, or phonemes distinct from those represented by simple letters.

Though he spent altogether five years living among the Indians of Dominica, Breton regarded his own work on Island Carib as a pioneering effort: 'je ne me vante pas de sçavoir la langue en perfection comme eux', he tells us in the introduction to his *Dictionnaire*, 'ayant mesme oublié beaucoup de ce que j'en sçavais.' And in the *Grammaire* he warns: 'Difficilement pourra-t-on faire des regles generales & certaines pour les accents, jusques à ce qu'on possede cette langue en perfection, & pourtant l'observation en est si necessaire parmi les Sauvages, que si vous ne les gardez, ou ils ne vous entendront pas, ou s'ils vous entendent, ils se railleront de vous.' But apparently such 'perfection' was not sought; for little seems to have been written, and less published, about this language since his time. However, it long continued to be used in Dominica and St. Vincent, where the last native speakers died about 1920; and an offshoot of the Vincentian dialect is today the mother tongue of more than 30,000 so-called Black Caribs whose settlements are scattered along the shores of the Bay of Honduras.

These Black Caribs, of largely African stock, are the descendants of some five thousand deportees who, in 1797 (subsequent to the abortive Carib war of liberation, which lasted from March 1795 to November 1796), were shipped from St. Vincent to the island of Ruatan. The first Africans to speak the language probably came 'from the loss of two Spanish ships in 1635' off the coast of St. Vincent; but these were augmented—perhaps more by 'a very great number of fugitive negroes, for the most part from Barbados' than by natural increase—to such an extent that by the end of the century they had come to outnumber their 'red Carib' hosts.[4]

The segmental phonemes of the modern Central American dialect, as recorded by me in 1947–48, are: m, b, p, f, n, d, t, (hissing) s, c (a hushing affricate [tš] that loses its occlusion in some positions, becoming a hushing sibilant [š]), l, r, g,

[2] For the Dictionnaire caraïbe-françois and françois-caraïbe I use the facsimile editions of Jules Platzmann (Leipzig, 1892 and 1900 respectively); and, for the Grammaire, the edition of L. Adam & Ch. Leclerc, tome III of the Bibliothèque Linguistique Américaine (Paris, 1878).

[3] P. 112 in Joseph Rennard's Les Caraïbes, La Guadeloupe: 1635–1656 (Paris, 1929).

[4] Citations are taken from the Introduction to my monograph, The Black Carib of British Honduras (VFPA 17; New York, 1951), where full references are given.

k, h, (in which b, d, g and p, t, k are, r-e spectively, distinctively voiced and voiceless stops); and: i, e, a (with a very wide range, allophonic variation depending on environment), o (back unrounded mid [ə̄] to high [ɪ̄]), u ([o], [u] and—as for Breton's dialect—[ụ]).[5]

The principal consonantal correspondences (with which this note is alone concerned) between the dialect described by Breton and that spoken today in Central America are as follows: m : m, b : b, P : f, n : n, N : h, d : d/t, s : s/c, l : l/r, r : r, g : g/h, h : h. Also b/P : p and g : k are found; but the modern Central American oppositions of (voiced—voiceless) b—p and g—k apparently have developed within the past hundred years; and at the present time /p/ and /k/ occur in only some half dozen native morphemes each, where they are always word-initial. The replacement, in Central America, of earlier ci, ce by gi, ge in most but not all forms having contained one of the former sequences is of a different nature from the foregoing, and will be discussed after and apart from the other changes.

Before presenting in detail such slight evidence of chronological development and local divergence as I have found, a more general interpretation of the phonic evolution leading to the above-listed correspondences may be offered. On the model of pre-existing b—P, the early apical and dorsal stops split into unaspirated d, g and aspirated T, K; this last new phoneme having an affricated allophone or allophones (occurring perhaps especially before /a/) analogous to that of /P/. These affricates then lost their occlusion; and the resultant spirants were later generalized (or at any rate dissociated from their occlusive partners) as /f/ and /x/, the latter finally being merged in pre-existing /h/. The comparative rarity, linguistically speaking, of 'th-sounds' (dental fricatives) may account for the failure of aspirated T to follow suit, as if to avoid being merged in s. Instead, it was the sibilant that split into hissing s and hushing c. Unless it arose independently in St. Vincent and in Central America subsequent to the deportation of 1797, we must assume that this c contained from the start an occlusive element in most of its occurrences; for s, and not c, replaces /š/ and /ž/ of the model in loanwords such as those from Fr. changer, chirurgien, courage, fromage, mouchoir, riche, Eng. sheet, and in some two dozen other borrowed forms attested in my record of the Central American dialect. If the phonologicization of the early hissing and hushing variants first took place in a group of speakers living among or beside others who continued for a time to treat them as members of the same phoneme, /s/, this 'reinforcement' is not surprising; but it would be hard to explain otherwise.

Apparently, /l/ has been replaced, in part of its earlier distribution, by /r/ in all later dialects of Island Carib (usually but not always in the same forms); and we meet with the same phenomenon in comparing earlier and later records of the related language called Lokono (True Arawak). I can find no evidence of any conditioning factor for this change; and since l—r are still in opposition (as, e.g., in: líli *his tail*, but líri *his name*), I can only suggest that both these languages may at one time have had three distinctive 'liquids', two of which were recorded as l, and that one of these has now fallen together with pre-existing /r/.

The passage of P to f, of K to x to h and of N to h (perhaps by way of h plus nasalization of the following vowel) thus destroyed, by reducing it to the single opposition d—T, the correlation of aspiration that had been built up. It is altogether likely, and there is some evidence to show, that this d was regularly voiced long before T lost its distinctive aspiration; which it kept long enough, at any rate, to make d the more

[5] See: Phonemes of the Hopkins (British Honduras) dialect of Island Carib, in IJAL 21.233–41 (1955).

suitable substitute for Spanish and English voiceless apical stops in loan words such as: dumádi *tomate* (*tomato*), sagádi *sacate* (but used in general reference to *grass*), gúdi *ocote* (*resinous pine*; wood for lighting fires), durúgu *truck* and sídi *sheets* (*bedclothes*); some if not all of which were certainly borrowed in Central America. But in the cases of b and g, which unlike d now lacked aspirated occlusive counterparts, there was more latitude; and in fact we have evidence from as recently as 1872 that [k] and [g] then belonged to the same phoneme (see below). At this stage, however, an understandable tendency to generalize the voiced variants of b and g, by analogy with d, must have set in, to be checked only by the creation, doubtless through the speech of bilinguals, of a new series of distinctively voiceless (rather than aspirated) stops. Needless to say, the change could not have taken place at the same time for all speakers; and it is therefore not surprising to find evidence of occasional though rare confusion. Thus, besides páta *prickly pear*, from earlier báta, we now find pátara *slap*, from earlier (a)pátara; while f in fítaru *fishing-line, cord* (and also, apparently, in anúfude *fear*) comes from early b, not P.

It would seem that nobody, after Breton, took any further notice of the language until 1792, when Sr W. Young, who had been the first English governor of St. Vincent, wrote down a score of words from 'an Indian red Charaibe (Louis)' belonging to one of three families of 'red Charaibes' settled in a corner of his Louis d'Or estate on Tobago. Louis, he tells us, 'was five years old when his father and family fled (about fifty years past) from the persecutions of the Africans or black Charaibes of St. Vincent's'; so that this informant's speech may have been somewhat 'old fashioned'. Nine of the words are shown here, as recorded, between what appear to be their cognate equivalents in the earlier Dominican dialect (in Breton's spelling) and those of the modern Central American dialect in phonemic transcription.[6]

tóna	tona	dúna	*water, river*
áoto, óto	oto'	údu	*fish*
ouáttou	wat-ho'	uátu	*fire*
naguétte	naketi	nagóto	*my grand-mother*
conóboui	conob	gunúbu	*rain*
calábali	cazabal	garábali	*wind*
ouekélli	wica	uogóri	*man, boy, male*
couálioua	qualeva	huą́ia	*Death (personified)*
chéche	suss	sóso	*(a sp. of) bird*

Sir William's omission of some of these words' final vowels, which are always more or less devoiced before pause, is hardly to be wondered at; but he could not have failed to hear and record a distinction, had one been made, between voiced and voiceless stops; and there is only his h in the word meaning *fire* to suggest that /d/ of the early dialect may at that time already have split into aspirated T and unaspirated but still normally voiceless d, parallel to pre-existing P—b.

However that may be, Colonel don Juan Galindo, in a short word-list of the Central American dialect published in 1833, wrote t in hati *moon* and wat *fire*, d in duna *water*, idudu *Indian* and ugudi *feet*, in agreement with the modern phonological shapes of the words recorded (háti, uátu, dúna, idúdu, ugúdi); while /g/ of the early dialect (Breton's k, c, or g) is reflected in this record by h or j (jota) where it corresponds to an /h/ of modern Central American, and by g or c where it corresponds to the latter dialect's /g/. So, Breton's cáti *moon*, ouácabo *our hands* and ácounoucou *next*, corresponding to modern Central

[6] Pp. 292–93 in Bryan Edwards' History ... of the British West Indies; London, 1795 (2nd ed. ?). William Young's Journal of a voyage undertaken in 1792, from which these data are taken, is not included in all editions of this work.

American háti, uáhabu and áhunugu, are given by Galindo as: hati, wajap and lajunaguni (in which l- and -ni are affixes); while Breton's ougoútti *foot or feet*, ouáchic or ouacheúkê *our heads* and coulíalla *canoe*, corresponding to modern Central American ugúdi, unacígo or uacógo and guríara, are given by Galindo as: ugudi, waichic and gureira respectively. No reflex of early /P/ appears in this list, which, however, shows early /b/ both as b and as p. So, abana *one* and bíama *two* (modern /ábana/, /bíama/), but wajap (see above) and wipú *hill*, this last corresponding to Breton's ouébo and to modern /uóbu/ *mountain*.[7]

Galindo's occasional p for /b/ and c for /g/ might plausibly be attributed to the unconscious influence of his native Spanish (in which, between vowels, /b/, /d/ and /g/ are spirants and only voiceless stops occur); but forty years later (in a manuscript Grammar and Dictionary of the Karif language of Honduras,[8] dated at Belize, December 1872), the Rev. Alexander Henderson wrote both k- and, less often, g- in Anlaut, though always -g- between vowels, in forms now always having /g/. So: kuriera *canoe*, karabale *wind*, kunubu, gunubu *rain*, but iûgû (a mistake for cûgû or icûgû?) *head*, etc. Like Galindo, Henderson seems to have employed h initially and j intervocalically for what must already have been the same phoneme; so, the first j in his ajamajune *flying* corresponds to an h (/h/) and the second to a c (/g/) of Breton's record. His b regularly corresponds to early /b/, as in ujabu *hands* and wûbu *mountain*, and his f to early /P/ (Breton's p and pf), as in funate (modern /funáti/) ponáti *it is red*; while the sound [p], as in the loanword pêne *penny*, was 'scarcely in use' according to a marginal note made by C. H. Berendt. Henderson's t and d everywhere agree, so far as the material available to me is concerned, with the distribution of /t/ and /d/ as I recorded it, also in Central America, seventy-five years later (1947).

Contemporary with the above-mentioned work by Henderson are manuscript word-lists, dated 1877 and containing about 150 items each, from the islands of St. Vincent and Dominica, recorded by the American ornithologist Frederick A. Ober;[9] and twenty years after that, a short sketch of the Dominican dialect by Joseph Numa Rat, a local physician, was published.[10] In this material, early /d/ is reflected by d or t of Vincentian and by t of Dominican, early /s/ by s or ch of Vincentian and by s of Dominican, early /P/ by f of Vincentian and by p or f of Dominican, early /N/—unattested in Ober's word-lists—by nh (described as an aspirated nasal) of Rat's Dominican. Apart from the fairly frequent substitution of r for early l, common to all later dialects and discussed above, early b, m, n, l, r and h show no change being reflected by these same symbols in Ober's and Rat's recordings of Vincentian and of Dominican alike.

In Ober's and in some other slight and scattered records of recent Vincentian, the symbols d and t show the same distribution (in all but a single instance) as have, respectively, the phonemes /d/ and /t/ in corresponding forms of the modern Central American dialect; while s and ch (or j in one instance) show the same distribution as have, respectively, the phonemes /s/ and /c/ in the modern Central American dialect's corresponding forms—except in so far as the latter's earlier /ci/ and /ce/ have now been largely replaced by /gi/ and /ge/, a change that will be discussed below. The distribution of p and f in recent Dominican, as well as my own gleanings from children of its last native speakers, make it clear that this f (which I

[7] Juan Galindo, Notice of the Caribs in Central America; in Journal of the Royal Geographical Society of London, vol. 3 (1833), pp. 290–91.

[8] Bureau of American Ethnology, MS 1090.

[9] Bureau of American Ethnology, MS 1084.

[10] In Journal of the Anthropological Institute of G. B. & Ireland, vol. 27 (1898), pp. 293–315.

heard as bilabial) and this p (which was aspirated) belong to the same phoneme /P/, the spirant apparently occurring only, but not always, before following /u/; but there is no record of a p-sound, even in loanwords, for recent Vincentian.[11]

The fate of early /g/ in these two recent dialects is more obscure. In Ober's lists, this phoneme is reflected by g (37 instances), gh (2 instances), k (16 instances), kh (2 instances) and h (2 instances) of Vincentian; and by k (53 instances), sch and sh (one instance each), f (one instance) and h (3 instances) of Dominican. But Rat has ch (described as the voiceless hushing assibilant) in one form, chísenti *he is loved/liked*, where Ober has h; and in another he has h where Ober has sh, narishi *my seeing*; and Ober's Vincentian kati *moon* was later (1890 and again circa 1914) recorded in the same island as hati. Comparing the distribution of Ober's Vincentian g, gh and k, kh with that of the phonemes g and h (from early /g/) of the modern Central American dialect, I find the following correspondences: g/gh : g (38 instances), g : k (one instance), k/kh : h (10 instances), k/kh : g (7 instances), k : k (one instance).

Rat described—but did not distinguish by example from his aspirate h—the occurrence of a velar spirant as in the Scottish word 'loch'; and from my own Dominican informants I repeatedly heard both the 'ach-Laut' ([x]) and the 'ich-Laut' ([ç]), as well as affricates or clusters containing these sounds preceded by a k-like occlusion. I hesitate to adduce phonetic evidence from speakers who admittedly remembered only scraps of the old language; but since none of these sounds occurs in their native Creole, it may be of some value. Moreover, Ober's and Rat's records of these two recent dialects do not make phonological sense unless we assume that early /g/ had split, in both islands, into unaspirated /g/ and aspirated /K/; that this new /g/ was, usually but non-distinctively, voiced in St. Vincent and voiceless in Dominica; and that /K/ might be, according to environment and stress, an aspirated stop, an affricate or a spirant, palatalized or velar. And while it is clear that in neither dialect had the spirantized variants of K been generalized, it seems possible that a few of their one-time occurrences had been so weakened as to have passed to h. This hypothesis at least has the merit of explaining how Ober came to write a form narík̨i [narík̨ī] as narishi, a form aiákua [aɨá(k)xu̯a] as ayakwa for one dialect and ayafwa for the other, and how Rat, twenty years later, could hear as chísenti a form kíse̱ti [k̨ḉisēti] that Ober had written hisanti.

It is not surprising if recent Vincentian shows a greater resemblance to its Central American offshoot than to contemporary Dominican. But in one respect, in its adoption of a correlation of voicing in place of one of aspiration, the Central American dialect differs markedly from the other two. For aspiration as a distinctive feature evidently was maintained in Vincentian (by the d—T and g—K oppositions) and in Dominican (by the b—P and g—K oppositions), in both of which dialects Ober's voiceless k might represent either /g/ or /K/; but reduced in Central American to the single opposition of d—T, with Henderson's k- and -g- representing allophones of the only remaining dorsal stop, unaspirated /g/, it soon gave way to be replaced by a correlation of voicing in which voiceless /p/, /t/ and /k/ were opposed to voiced /b/, /d/ and /g/. The questions, why early /d/, /s/ and /g/ in St. Vincent, but only early /g/ in Dominica, were split, and why both P and K in Central America, but only P in St. Vincent and neither P or K in Domin-

[11] In an earlier note (IJAL 25, p. 64), I said that recent Dominican Island-Carib /p/ was spirantized 'only and always after primary stress'. Though stress was probably a contributing factor, as the examples there cited suggest, I now find that I was wrong on both counts; this dialect's /p/ having been spirantized only, but not always, before an immediately following /u/.

ica, passed to spirants, constitute a problem to which I shall return after describing another kind of change, peculiar to the Central American dialect.

In his book, Zur Ethnographie der Republik Guatemala (Zürich, 1884), Otto Stoll cites 42 forms of 'Caraibisch v. Honduras' from a manuscript that he describes as follows: 'Dr C. H. Berendt. Vocabulario comparativo de la lenguas pertenecientes á la familia Maya-Qu'iché.[12] MS. In diesem Vocabular hat Dr Berendt anhangsweise eine Anzahl von Sprachen, die der Maya-Familie fern stehen, aufgenommen und unter diesen auch das Caraibische. Es dienten ihm für seine Zusammenstellung ein MS. Vocabular und dito Dictionnaire, welche vom englischen Geistlichen *Henderson* verfasst worden waren.' At what date these MSS. were compiled is not stated; but though several of the forms cited by Stoll clearly differ, in more than a matter of spelling, from their cognate equivalents in Henderson's 1872 manuscript, there is no reason for doubting that they were taken from an earlier recording by the same investigator; for Henderson had lived in the area and interested himself in this language for a long time; his Karif translation of St Matthew having been published in 1847, at Edinburgh. Here are eight of the forms (1) as cited by Stoll, (2) as they appear in Henderson's manuscript of 1872 and (3) in phonemic transcription from my own 1947 record.

ichiri	igere	ígiri	*nose*
ichibu	igebu	igíbu	*face*
äche	êge	égei	*shoulder*
anixi	anege	anígi	*heart*
agacherügü	agacûrûgû	igácorogo	*knee*
ichügü	iûgû (icûgû?)	icógo	*head*
uguchuru	uguceru	-úgucu(ru)	*mother*
uguxili	ugucele	-úguci(li)	*father*

It might perhaps be suspected that Berendt, in the manuscript used by Stoll, had misinterpreted Henderson's g before i or e as the voiced counterpart of his c = [tš], and been content to represent both sounds by ch of his own hispanicizing orthography; or, alternatively, that he had allowed himself to be influenced by Breton's spelling of the 17th-century Dominican dialect. But this could not account for the use of x—presumably representing [š], which is still an allophone of /c/ in the modern Central American dialect—in two words where Henderson, in 1872, wrote g and c respectively, and where Breton, more than two hundred years earlier, had written ch = [š] in both (as in other words of this list; see below). Moreover, it seems clear that the replacement of /ci/ and /ce/ by /gi/ and /ge/ took place only in Central America; whereas the splitting of early /s/ into hissing /s/ and hushing /c/ was an innovation shared by the Vincentian dialect and its Central American offshoot. So, the cognate equivalents of these eight forms appear, in Ober's 1877 word-lists of Vincentian (1) and of Dominican (2), Rat's 1897 sketch (3) and Breton's 1665 dictionary (4) of Dominican, as follows (the markers of first, second and third persons singular, n- *my*, b- *thy* and l- *his*, have been put in parentheses):

(b)íchiri	(n)ísiri	ísiri	íchiri
(b)íchiboo	(n)ísiboo	(l)ísibu	ichíbou
——	——	——	éche
(n)aníchi	(n)anísi	ánisi	ánichi, aníchi
——	——	——	agágiric
(b)ijúga	(n)isúkoo	——	íchic, icheúkê
(n)ogóchúru	(n)okosólo	(n)ukúsuru	(n)oúcouchourou
(n)ogochili	(n)okosíli	(n)ukúsiri	(n)oúcouchili, (n)oucoúchili

In these and in other attested forms, Vincentian /c/ (written ch and j)[13] corre-

[12] This MS is in the Berendt collection of the University Museum's library, in Philadelphia.

[13] That ch and j of Ober's Vincentian record do indeed represent affricates is confirmed by another recording, made in 1890 by or from a native speaker, David Ballantyne of Sandy Bay, St. Vincent, and published in Vol. I, No. 7 (August 1893) of the Journal of the Institute of Jamaica, pp. 295–97. So, we find there: (n)eitchery (*my*) *nose*, (n)itchebuh (*my*) *face*, (n) aneitcheh (*my*) *heart*, (n)itchugu (*my*) *head* and eitchuga bai

sponds to /s/ of Dominican (written s by Ober and Rat, ch and, in one instance, g(i) by Breton) and to /c/ or to /g/ of the modern Central American dialect. Now the latter's /c/ (= [tš] ~ [š]) is common enough before /a/, /o/, /u/, but rare before /i/, /e/. In fact, I know only four common native forms which invariably contain this sequence: cíba- *wash*, cíga- *dig*, ícigа *to give or to put* and -úguci *father*; (with /ce/ there is cégua- *slash*, which is rather uncommon). Some speakers also have it, at least sometimes, in: cilo- or colo- *arrive*, cíligi or cúlugu *current* (*stream*), icígo or icógo *head* and anícigu or anícugu *wisdom*, *common sense* (a derivative of anígi *heart*, *mind*). On the other hand, Central American /g/ corresponding to Vincentian /c/ and to Dominican /s/ is found—with one apparent exception: gáfu : sápu *box*—only before /i/ or /e/. This distribution suggests that Central American /g/ once acquired, probably at a time when the dialect had no other dorsal stop, a palatalized or assibilated allophone before /i/, /e/ (as, perhaps, in áigini *eating*, *meal*, *food*, though not in áiga *to eat*) that later fell into disuse to avoid confusion. But the process must already have gone so far that, by 'hypercorrection', also /c/ in these positions came to be replaced by a 'normal' g-sound in most forms having hitherto contained /ci/ or /ce/.

If this hypothesis should be correct, one would expect to find some evidence for the assumed allophonic variation of /g/ in the manuscript used by Stoll, which, unfortunately, I have not seen. One would also expect to find, at a later date and before one shape or the other of a given morpheme affected by the change had been generally accepted, some wavering; and Henderson's (1872) igibagune *washing*, containing giba- *wash* in place of Breton's chiba- = /siba/ and modern /ciba/, can only be explained as an example of such wavering.

The modern shapes of such ancient borrowings as gusíu (couchígno of Breton's record) *knife* and mésu (méchou of Breton's record) *cat*, from Sp. cuchillo and micho, make it clear that the dialect first recorded had no such hushing assibilant as modern (c); and the later substitution of /s/ for /š/ and /ž/ (as well as for /s/ and /z/) of the model in such a loan-form as -sąse- from Fr. changer (cf. séisi from Fr. seize) makes it likely that Vincentian and Central American /c/ has contained, in what may be called its 'principal allophone', an occlusive element from the time of its phonologicization. This phoneme occurs in recent, post-deportation loans like: ícara *to put on weight or height*, from Sp. hinchar, teréca *stranger*, máci *matches* and puríci *preach*; but I can find no clearly earlier borrowing that contains it.[13] This is not surprising, since French then provided almost all the models. However, unless burígi *bridge* should have had as its model the northern form 'brig', which seems unlikely, it must have been borrowed early enough to undergo the widespread analogic change of /ci/ to /gi/. And the same may very possibly be true of figi- *dark*, *murky*, *sombre* (*of night*, *dusk*, *etc.*), for which I can find no cognate in another dialect or language, and which may well have been borrowed from Eng. pitch(y).

The structural and other changes outlined above that have occurred in the phonologies of Dominican, Vincentian and especially Central American Island Carib since Breton's time constitute 'good going', whether they took one, two, or even three

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give it (imperative 2nd sg.); the first four of which may be compared with the forms cited in the text, and the last with modern Central American ícigа bái, which has the same meaning. Breton's Dominican "akêchacoua" and modern Central American /áhocagua/, meaning *to sew*, have as stems "kêcha" (/gosa/) and /hoca/, which MAY be an early borrowing from Sp. coser. If so, this is an example of an early /s/ in a borrowed form becoming /c/ in the Vincentian and Central American dialects. In recent Dominican the same verb appears as Ober's "akusakua" *to sew*.

centuries to accomplish. Some of them are common to all three dialects, such as the apparent shift from /l/ to /r/ in /urágai/ (= Dominican [urákaị], Vincentian and Central American [urágaị]) *belly*, from Breton's oulácae. Others, though structurally different, are phonetically similar, as in the case of Dominican /binápui/ *morning* (whose /p/ is a bilabial spirant), Vincentian and Central American /bináfui/ (whose f is a labio-dental fricative), from Breton's binálepoule. Their line of development is for the most part present, in germ, in the dialect described by Breton three hundred years ago; in the hushing and hissing variants of his /s/, both of which were then employed by only some speakers; and especially in the b—P opposition, whose unaspirated member was usually but non-distinctively voiced in all positions, while aspirated P was affricated only but not always, in native forms, before /u/ (independently, it would seem, of stress). In Dominica, where early (g) was the only phoneme to split since Breton's time and unaspirated /b/ continued, ordinarily, to be voiced, the new unaspirated /g/ and aspirated /K/ were both usually voiceless; although I (like Breton before me) recorded exceptions, as in bugúti [pugúti] *thy foot/feet*. But in St. Vincent, where also early /d/ and /s/ were split and /P/ passed to a fricative /f/, unaspirated /b/, /d/ and /g/ appear to have been usually voiced (/g/ less often than the other two, though its aspirated counterpart /K/ remained, as in Dominica, for the most part occlusive), and hushing /c/ to have been regularly affricated, in conformity with the principle of maximum differentiation.

Nevertheless, the extent if not the direction of the phonetic changes differs considerably from one dialect to another. And in view of the comparative conservatism in this respect of the Dominican dialect, and of historically known facts concerning the origin, increase and predominance of 'black' over 'red Caribs' in St. Vincent, it is probably justified to see a connexion between the rate of phonic evolution on the one hand and the intensity and variety of contact with foreign languages on the other.

In St. Vincent, the multiplicity of the new-comers' African languages and the view that assimilation to the Indians in language and culture freed them from exposure to recapture probably combined to hasten the shift to Island Carib; but comparison of the modern shapes of such a pair of loanwords as mútu *person or people*, from muṅthu of some West African language, and fúdu *mug or jug*, from Fr. *pot*, suggests that some African language or languages may, before disappearing, have lent support to the correlation of aspiration incipient in the b—P opposition of the older dialect, and perhaps initiated the splitting of early /s/ into /s/ and /c/.

Also French influence seems to have been stronger in St. Vincent than in Dominica. So, we are told of the former island's Caribs —'red' and 'black' alike—at the time of Orme's visit in 1723, that 'all can speak French';[14] whereas an interpreter was required by contemporary visitors among the Caribs of Dominica. Yet while French /b/ and /p/ were distinguished in borrowed forms by Island-Carib /b/ and /P/ (> /f/ in St. Vincent), French voiced and voiceless apical and dorsal stops were alike replaced, with few exceptions, by the unaspirated members of the corresponding Island-Carib oppositions; and French /s/, /z/, /š/ and /ž/ were uniformly replaced, in loans, by Island Carib /s/. Unless I am mistaken, this indicates that the borrowing was done after the splitting had occurred; for had it been otherwise, one would expect aspirated T and K, and also hushing c, to have been as common in borrowed as in native forms. And if I am asked why, then, despite the undoubted priority of the b—P opposition, was aspirated T consistently substituted for French voiceless but generally unaspirated

[14] Unless cárua *row, disorder, upset* should have had Fr. charroi as its model.

/p/, I can only say that 'perception' in this case had come after 150 years of contact (albeit sporadic) with Spanish; in early loans from which language confusion had prevailed also for this pair of phonemes, as in Breton's bourbrê *gunpowder*, bouírocou *pig* and pántir *flag*, from Sp. pólvora, puerco and bandera, and which have become modern Central American búroburo, buíruhu and fanídira.

Contact with English, hitherto slight and sporadic, must have increased after 1763, when, by the Treaty of Paris, England annexed both Dominica and St. Vincent; and it probably became preponderant in the latter island subsequent to the Carib war of 1795–96. In their new home, the deportees of 1797 were at first exposed mainly to Spanish; but Thomas Young, who became acquainted with them on the Mosquito Coast in the years 1839–41, tells us that they acquired languages easily and that many of them could then speak Spanish, French Creole and English besides their own tongue.[15]

It seems impossible to attribute any particular change that took place to the direct interference of this or that language; but most of them were probably hastened by the combined influence of all the contacts acting as a ferment upon a latent or not-so-latent internal tendency.

DOMINICA, BRITISH WEST INDIES

LANGUAGE SHIFT OR CHANGING RELATIONSHIP?

DOUGLAS TAYLOR

Both Tomás Navarro and, more recently, H. L. A. van Wijk have adduced notable evidence indicative of "el carácter afroportugués y no afroespañol del papiamentu primitivo, ya que se formó en Curazao durante un período en el que el español había desaparecido de escena y por tanto difícilmente hubiera podido contribuir desde un principio a la formación del curazoleño . . .".[1] On the other hand, Keith Whinnom says that: "The similarities in grammar and syntax, and even in vocabulary, between the Spanish contact vernaculars in the Philippines and Indo-Portuguese, are so many—and they are not attributable to a common substratum—that we can be quite certain that Ternateño did develop out of the common Portuguese pidgin of the Eastern Seas."[2] Finally, R. W. Thompson has suggested that the early (15th and 16th centuries) Portuguese pidgin employed on the coast of West Africa may have been carried both east and west, maintaining its essential grammatical structure but adapting its vocabulary under pressure from European languages other than Portuguese, and have given rise to the various Dutch, English, French, Spanish and, of course, Portuguese Creoles as we know them.[3]

This hypothesis is plausible, though perhaps not susceptible of proof, and would explain the presence of features shared by all or some of these creoles[4] but foreign

[15] See footnote 4.

[1] Tomás Navarro, El papiamento, la lengua criolla de Curazao; offprint of the Anales de la Universidad de Chile, 1926–27; and: Observaciones sobre el papiamento; in Nueva Revista de Filología Hispanica VII.1/2 (1953). H. L. A. van Wijk, Orígenes y evolución del papiamentu; in Neophilologus XLII (1958), pp. 169–82 (the above-cited passage is from p. 182).

[2] Keith Whinnom, Spanish Contact Vernaculars in the Philippine Islands; Hong Kong (and Oxford) University Press, 1956. The passage cited here is from fn. 21, p. 9. See also my review of this work in Word XIII.3 (1957), pp. 489–99.

[3] R. W. Thompson, Possible Affinities between the Creole Dialects of the Old and New Worlds. MS. Paper read at the Conference on the Study of Creole Languages held at the U.C.W.I., Jamaica, March 28th to April 4th, 1959.

[4] For example, van Wijk (loc. cit. in fn. 1, p. 175) finds more than seventy Portuguese words that occur with the same characteristic shapes in both Papiamentu and Sranan (the English Creole of Surinam); and Jan Voorhoeve, in his Voorstudies tot een beschrijving van het Sranan Tongo (Amsterdam, 1953), finds and cites enough grammatical similarities between this language and the French Creole of Dominica as described in my

to the languages of which they are, according to Robert A. Hall Jr. and Uriel Weinreich, but branches.[5] However, if Papiamentu, for example, should be a 'branch of Spanish' that began as a 'branch of Portuguese', at what stage of its hispanicization—which appears to have been gradual[6]—can the shift be said to have taken place?

In Weinreich's opinion, "THE criterion [of genetic relationship] is the existence of cognates in the basic morpheme stock, with parallelism in allomorphic alternations as a powerful supplement." Clearly, this cannot be applied without modification when the choice is between two such closely related 'mother languages' as Portuguese and Spanish; for while the ancestry of Papiamentu's basic morphemes is obviously Spanish in some cases (e.g. webu *egg*, wesu *bone*, anochi *night*, hamber *hunger*), and just as obviously Portuguese in others (e.g. bon *good*, foya *leaf*, ken *who*, nobo *new*), it might more often be either one or the other (e.g. tende *hear*, landa *swim*, mi *1st person sg.*, bo *2nd person sg.*, nos *1st person pl.*; v. fn. 6). But the greater "similarity in expression (form) and in meaning or function" (Weinreich, loc. cit. in fn. 5) is not always easy to discern even when the choice is between more distantly related or even unrelated languages.

A specific instance is the locative preposition na *at, in*, etc., which occurs in Papiamentu, in the Spanish Creoles of the Philippines, in Sranan (the English Creole of Surinam), in the now-extinct Dutch Creole of the Virgin Islands and, with nasalized vowel (nã), in the French Creole of Haiti—with much the same functions in all. Of na in the Philippine group, Whinnom writes (op. cit. in fn. 2, p. 28): "It is an all purpose preposition, supplanting Spanish *a, sobre, en*, etc., and it usurps in addition part of the function of the definite article." Of na in Sranan, Voorhoeve says:[7] "*na* kan beschouwd worden als een basisvoorzetsel in plaatsbepalingen. Een plaatsbepaling zonder dit voorzetsel (...) is in principe niet mogelijk." And before we con-

article, Structural Outline of Caribbean Creole (in Word VII [1951], pp. 43–59), to call the latter "een verwante taal" (a related language). See also my article, Language Contacts in the West Indies (in Word XII.3 [1956], pp. 399–414), especially pp. 408–09.

[5] See Robert A. Hall jr., Creolized Languages and "Genetic Relationships", and Uriel Weinreich, On the Compatibility of Genetic Relationships and Convergent Development; both in Word XIV.2/3 (1958), pp. 367–73 and 374–79 respectively.

[6] Thus, besides words of distinctly Portuguese flavour, such as: lo *future mode*, bai *go*, ken *who*, bon *good*, nobo *new*, korá *red*, pretu *black*, foya *leaf*, fó *outside*, (cf. Ptg. logo, vai, quem, bom, nôvo, còrado, prêto, fôlha, fóra vs. Sp. luego, va, quién, bueno, nuevo, colorado, prieto, hoja, fuera), or the name of the language itself, papiamentu < papia *speak* (Ptg. papear *chatter*) + -mentu (Ptg. -mento), and others as distinctively Spanish, such as: webu *egg*, wesu *bone*, shete *seven*, (a) nochi *night*, hamber *hunger*, (cf. Sp. huevo, hueso, siete, noche, hambre vs. Ptg. ôvo, ôsso, sete, noite, fome), there are still others that show a partial assimilation: harinja (Ptg. farinha, Sp. harina) *flour*, palomba (Ptg. pomba, Sp. paloma) *dove*, heru (Ptg. ferro, Sp. hierro) *iron*. (It seems possible that Dominican Creole ich [iš] *son(s) or daughter(s)* may result from some such partial assimilation of Sp. hijo, -ja to French.)

So also, Sranan has in common with Saramaccan (the language of independent Bush Negroes of the interior of Surinam) many words of English ancestry (e.g.: dede *dead*, waka *walk*) and some of Portuguese ancestry (e.g.: bun *good*, ptjin *small*); but Saramaccan also employs a large number of apparently Portuguese forms unknown to Sranan, and is, as the latter is not, a tone language; so: ómi *man or men*, múye *woman or women*, túu *all* (compare tuú meaning and from *true*), where Sranan has man, uma, ala. If both these languages began as an Afro-Portuguese pidgin that was later anglicized, it would not be surprising that this process should have gone further among the descendants of those who remained on the coast as slaves than among the offspring of those others who escaped to the bush and became free more than two hundred years ago.

[7] Jan Voorhoeve, Structureel onderzoek van het Sranan (in De West-Indische Gids 37.2/4 [1957], pp. 189–211), p. 195.

clude, as both van Wijk and Whinnom not unnaturally did, that Portuguese na < em *in* + a *the-fem.-sg.* is ancestral to the Creole forms, let us note that, according to Ida C. Ward,[8] also Ibo "na, *in*, the commonest preposition," has a much wider function than the translation *in* would lead one to suppose. So, Ibo na ɔhea, Sranan na busi and Haitian Creole nã rajé may mean, according to context (direction being indicated only by a preceding verb): *in(to) the bush, out of the bush, to/from the bush*, as Portuguese na selva can not. Moreover, in Ibo, in Sranan and in the Philippine Creoles, the preposition na combines with nouns to form prepositional and adverbial phrases in a way that is foreign to English, Spanish and Portuguese. E.g.:

English	Ibo	Sranan	Philippine
upon, above	na ɛlu	na tapu	na arriba (de)
within	na imɛ	na ini	na dentro (de)
behind	na azu	na baka	na detrás (de)
between	na ɛtiti	na mindri	na medio (de)

The personal pronouns (which serve, except as otherwise stated, both as subject and as object) are, for Sranan (alternants are shown in parentheses): mi (m) *1st sg.*, ju (i) *2nd sg.*, a- (subject only) & en *3rd sg.*, unu (un, u) *1st & 2nd pl.*, den *3rd pl.*; for Lesser Antillean Creole: mwẽ *1st sg*, u & w (object only) *2nd sg.*, i (subject only) and y (li) (object only) *3rd sg.*, nu *1st pl.*, zot *2nd pl.*, yo *3rd pl.*; for Haitian Creole: mwẽ (m) *1st sg.*, u (w) *2nd sg.*, li (l) *3rd sg.*, nu (n) *1st & 2nd pl.*, yo (y) *3rd pl.* Striking is the fact that both the English Creole of Surinam and the French Creole of Haiti fail to distinguish formally between first and second persons plural; and that while Srn. unu and Hai. nu might well be cognate with Dutch ons and French nous so far as first person is concerned, the extension to second person can hardly be called a gradual modification of the European words' functions. Moreover, in both the broad dialect of Jamaica and in the Ibo language of West Africa, the personal pronoun of second person plural (only) is unu; while (Senegalese) Sérère has nu *1st person plural* and nun *2nd person plural*.

Although many West African languages have, in common with Indo-European, first person singular pronouns in m(V) (Ibo m, Yoruba mi and mo, etc.), while that of third person plural is said to be ye in Fongbé and yo in Songhay, the remaining forms cited above most probably come from English (me, you, him, them) and French (moi, vous, il & lui, nous, vous autres, eux). But their ordering, at least so far as the French Creoles are concerned, is very different from that of the 'mother language' (cf. Srn. den ptjin f ju = Dominican Creole se zãfã-w-la = Fr. tes/vos enfants = Eng. your children), and when there are two objects resembles that of Portuguese (and of many West African languages). E.g.: i ba-mwẽ-y *he gave it to me* (Fr. il me l'a donné; Ptg. deu-mo < deu-me o), i ba-w-li *he gave it to thee* (Fr. il te l'a donné; Ptg. deu-to < deu-te o), mwẽ ba-y-li *I gave it to him* (Fr. je le lui ai donné; Ptg. dei-lho < dei-lhe o), ba-mwẽ-y *give it to me* (Fr. donne-le-moi; Ptg. dá-mo < dá-me o). That the same order should obtain also in Sranan is less surprising, since such a form as Srn. gi mi en *give it to me* may be rendered also in English by *give me it.*

Constructions like: (Haitian Creole) liv-la-yo (*book-the-they*) *the books* and liv-sila-yo (*book-that-they*) *those books*, (Louisiana Creole) liv-la-ye (*book-the-they*) *the books* and (Cayenne Creole) liv-ya < liv-ye-a or liv-ye-la (*book-they-the*) *the books* are reminiscent of Ewe ati-à-wó (*tree-the-they*) *the trees* and ati si-à-wó (*tree that-the-they*) *those trees*; as are Papiamentu hoben-nan-ei (*youth-they-that*) *those young men* and Cayenne Creole aguti mo mãje kã mo te la bitachõ ye-la (*agouti I ate when I was in country they-the*) *the agoutis that I ate when I*

[8] Ida C. Ward, An Introduction to the Ibo Language (Cambridge, 1936), p. 198 et passim.

was in the country. This may be nothing more than a case of loan translation; but can it be pure coincidence that the 'definite article' has the same position, function (that of a weak demonstrative having reference to a previously mentioned term which, if not itself nominal, is nominalized thereby) and shapes (both -la and -a) in Ewe as in Haitian Creole, and that sila of the latter language (< Fr. cela?) has the same function and almost the same shape as Ewe si-a? Many West African languages employ the personal pronoun of 3rd plural as a nominal pluralizer; and such usage in the Creoles of Louisiana, Haiti, Cayenne and Curaçao may be no more than a calque; but if yo and ye come from French eux (rather than from, say, Fongbé ye), no European model has been suggested for Papiamentu nan, nominal pluralizer and personal pronoun of 3rd plural.

The verbal systems of all the creolized languages mentioned here are constructed by means of three 'verbal particles' or 'prefixes', employed alone and in various combinations, whose presence or absence determines tense, mode and aspect of the verbal phrase or verb. In Sranan, these very basic morphemes are: ben- (be-) *past tense*, sa- *non-realis mode* and e- (de-) *non-completive aspect*; in which it seems natural to see cognates of English been, shall and (more doubtfully) prepositional a- (as in: twenty years a-growing)—despite the considerable difference of functions.[9]

[9] Cf. Saramaccan bi-, sa- and ta-; Papiamentu taba, lo and ta; Hong Kong Macanese ja, logo and ta; Indo-Portuguese ja, di and ta; Philippine Creoles ya, de or ay and ta; Cayenne Creole te, wa or ke and ka; Lesser Antillean Creole te, ke and ka; Haitian Creole te- ava- (va-, a-) and apé- (apr-, ap-, pé-). With the Sranan forms compare Jamaican ben-, wi- and a- (da-).

Jan Voorhoeve, in his article, The Verbal System of Sranan (in Lingua VI.4 [1957], pp. 374–96), p. 383, shows schematically the various possibilities as follows:

Functionally, however, the Sranan verbal prefixes correspond rather closely to the verbal particles of Lesser Antillean French Creole: te, ke and ka; for which one would like to find, analogously, French cognates. A likely cognate for te is French été (or perhaps était); and it has been suggested that ke is a contraction of ka ale, containing ale *go*, from Fr. aller or allé. Various African origins for these particles have also been suggested; and certainly (Senegalese) Sérère ka *do*, which is employed as a verbal intensifier, has greater plausibility as a model for the Creole aspect-marker than has either Fr. qu'à or Fr. qu'a (< qui a).[10]

		tempus: past	tempus: present	
mode	realis	*ben-*	[zero]	completive
	non-realis	*ben-sa-*	*sa-*	completive
	realis	*ben-e-*	*e-*	non-completive
	non-realis	*ben-sa-e-*	*sa-e-*	non-completive

(mode: realis / non-realis; aspect: completive / non-completive)

Except for the last line (the 'non-realis non-completive'), which, though theoretically possible (it would most likely be understood in an appropriate context), is not used in this form, the above scheme also fits the verbal system of Lesser Antillean French Creole by substituting te for ben-, ke for sa- and ka for e-. So compare Dominican Creole with Sranan (in parentheses): mwē malad (mi siki) *I'm sick*, mwē ēme-y (mi lobi en) *I love him*, mwē mache (mi waka) *I (have) walked*; mwē te malad (m ben-siki) *I was sick*, mwē te ēme-y (m ben-lobi en) *I loved him*, mwē te mache (m ben-waka) *I had walked*; mwē ke malad (mi sa-siki) *I shall be sick*, mwē ke ēme-y (mi sa-lobi en) *I shall love him*, mwē ke mache (mi sa-waka) *I shall walk*; mwē te ke malad (m ben-sa-siki) *I should be sick*, mwē te ke ēme-y (m ben-sa-lobi en) *I should love him*, mwē te ke mache (m ben-sa-waka) *I should walk*; mwē ka malad (m e-siki) *I get sick* or *I'm getting sick*, mwē ka mache (m e-waka) *I walk (habitually)* or *I am walking*; mwē te ka malad (m be-e-siki) *I used to get sick* or *I was getting sick*, mwē te ka mache (m be-e-waka) *I used to walk* or *I was walking*. Though not attested here, 'non-completive' forms of ēme (lobi) *love* are semantically improbable rather than grammatically impossible.

[10] See Elodie Jourdain, Du français aux parlers créoles (Paris, 1956), pp. 143–46 and 314–16; also

But there is a third possibility. Mme Jourdain (*loc. cit.*), citing Delafosse (Manuel dahoméen, Paris 1894) says that the "temps d'habitude" of this language (Fõn?) is constructed by means of the auxiliary verb no *rester, demeurer*; thus: m do *je dis ou j'ai dit*, m no do *j'ai coutume de dire ou je suis en train de dire*. She also says that ka, in the Portuguese Creole of São Thomé, has the same function (marker of habitual-progressive or, as Voorhoeve calls it, non-completive aspect) as has the homophonous form in the French Creoles of Cayenne and the Lesser Antilles. Now the nearest Portuguese equivalent of Dahomean no *stay* would seem to be the verb ficar; and it is not improbable that this verb should have provided the model for the aspect-marker ka in the Creoles of São Thomé, Cayenne and the Lesser Antilles (cf., with much the same functions as has ka, the aspect-marker ta of Saramaccan, Papiamentu and the Philippine Creoles, whose models presumably were Ptg. or Sp. estar and está).[11]

In Haitian Creole (see Robert A. Hall Jr., Haitian Creole; Menasha, Wisconsin, 1953; p. 33), the "future tense sign" is a-, ava-, va-; va- occurring when preceded by a vowel (or by one of the "full pronoun forms", which end in vowels), a- or (more emphatic) ava- when preceded by a consonant (or by one of the "contracted forms", which consist of a single consonant or semivowel). Here Sylvain (op. cit. in fn. 10) tells us that "ava, va, a, est indice du futur chez les Ewé et correspond à une racine bantoue: *bia* = venir dont dérive l'indice du futur d'une grande quantité de langues africaines." Nevertheless, Jourdain (op. cit. in fn. 10) finds it natural to recognize Fr. va *goes* or (imperative) vas *go*, and Weinreich (loc. cit. in fn. 5) to see cognates of Fr. avoir *have* in these samę Haitian (ava-, va-, a-) and Cayenne (wa) forms.

So far as I know, there has never been any doubt as to which creolized languages were 'French' (being the most numerous and the most widespread, the word Creole is in fact often used to designate any or all of the French Creole dialects, and them alone); while Negerengels Negro English is the more usual Dutch name for Sranan (native speakers call it simply Nengere Negro). On the other hand, van Wijk classifies only "Primitive" Papiamentu as "Afro-Portuguese", and Whinnom speaks of the "Spanish" contact vernaculars' (of the Philippines) having developed "out of . . . Portuguese pidgin"; which seems to imply that a language can, in their opinion, change its relationship. And apparently nobody has so far ventured to label Saramaccan as either an English Creole (or Afro-English) or a Portuguese Creole (or Afro-Portuguese). Yet Papiamentu has been studied at least as intensively as Haitian Creole or Sranan; and if relatively fewer of its basic morphemes have their undoubtedly closest cognates in the 'mother language' (assuming this to be Spanish) than is the case with the other two languages (assuming these to be, respectively, branches of French and of English), the difference is only one of degree, as I have tried to show in preceding paragraphs.

The verbal systems belong to the most basic and complex part of these Creole languages' grammar; yet in none of them do the morphemes (and combinations thereof) employed in their construction show such "similarity in expression (form) and in meaning or function" with forms of the 'mother language' as would justify us in calling them undoubted cognates of the latter. Of the three Sranan prefixes, ben-

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Suzanne Sylvain, Le créole haïtien: morphologie et syntaxe (Wetteren & Port-au-Prince, 1936), passim.

[11] The fact that Cayenne Creole, whose ka has the same function as that of the Lesser Antillean dialects, also has a verb fika *stay, be (in a place or state)*, (*Fr.*) *se trouver* no more militates against Ptg. ficar as model for both than does the fact that Haitian Creole has, besides the progressive verbal prefix ap- (apr-, apé-, pé-), a preposition and adverb apré *after, next* make it unlikely that Fr. après served as model for both Creole forms.

(be-), sa- and e- (de-), the first probably is and the other two MAY BE of English ancestry. But since sa- occurs in such an utterance as: i sa-go taig a man dati? *you have-gone tell the man this?* (= *You've really been so stupid as to tell this to that person?*) (v. Voorhoeve, loc. cit. in fn. 9, p. 382), it clearly cannot be regarded as a marker of future tense; and Ptg. sabe becomes at least as plausible a model for this prefix as Eng. shall. Similarly, the replacement of Haitian Creole ava- (va-, a-) by progressive ap- and its alternants when negative pa *not* precedes would be unexplainable if the former morpheme were simply a marker of future tense; and while Fr. va and avoir may be equally plausible, so far as shape is concerned, as cognates of one of the Creole morpheme's alternants, only Ewe ava- (va-, a-) accounts for all three. The origin of Lesser Antillean ke *shall, will* in ka ale *go* (*habitually*) or *be going* is made less likely, though not excluded, by the existence in the same dialects of kay, which native speakers recognize and use as a contraction of ka ale; while no likely French cognate of ka itself has ever, to my knowledge, been proposed. If Papiamentu lo is a cognate of Ptg. logo, there is no reason why taba and ta of the same language should be of Spanish rather than Portuguese ancestry.

Sranan and Saramaccan te *until, till, as far as* probably has Ptg. até as model; but the "basic locative preposition" na of these and other Creoles (the Phillipine contact vernaculars, Papiamentu, Dutch Creole of the Virgin Islands, Negro speech of 19th-century Puerto Rico,[12] etc.; and cf., with the same function, Haitian nã, Cayenne la, and—despite its phonic identity with Fr. en—Lesser Antillean ã in such expressions as: sòti ã dlo *come out of the water*) is, as we have seen, more likely to have an African than a Portuguese origin if function as well as form be taken into consideration. In the absence of any known alternative it would be plausible to argue that the -(l)a of Haitian and Lesser Antillean Creole bug-la *the/this/that fellow* and pè-a *the/this/that priest* is a cognate of Fr. là, as in cet homme-là; but only an African language, such as Ewe, can account for the alternation, -la, -a, and for the nominalizing function of the Creole morpheme (as in the Cayenne Creole phrase cited above). Also the use of the 3rd plural personal pronoun as nominal pluralizer is clearly taken from neither French not Ibero-Romance; and of the personal pronouns themselves, some at least seem to have an African ancestry (Pap. nan *3rd pl.*, Srn. and Jam. unu and Hait. nu *2nd pl.*, and, doubtfully, yo/ye *3rd pl.* of all West Indian French Creoles).

The grammatical categories of the creolized languages do not correspond to those of their 'mother languages'. Haitian Creole distinguishes progressive l-ap-vini *he is coming* from non-progressive li vini *he comes* (*habitual*), *he came or he has come*; while French includes progressive and habitual in its present indicative il vient *he is coming, he comes*, but distinguishes past

[12] In an article called Notas sobre el habla del negro en Puerto Rico durante el siglo XIX (in Revista del Instituto del Cultura Puertorriqueña, No. 2, enero-marzo, 1959; pp. 43–48), Manuel Álvarez Nazario cites 19th-century records showing nan and similar forms to have been used in apparently different functions: as an article, as a preposition, as a preposition plus article, as a preposition plus adverb of place and, exceptionally, as a pronoun of 3rd person plural. This last may be discounted, since the persons using it are described as "mulatos curazoleños". The other usages cited may be exemplified by: nan cañón *el cañón*, nan pasa *la(s) pasa(s)*, nanllí (*en*) *allí*, nan Poto Rico *a* (*en*) *Puerto Rico*, nan fondo *en el fondo*, nan so *de* (*en*) *el sol* and nante (*en*) *aquí te*. The prepositional function is quite analogous to that of na in the various Creoles where it occurs; and in Sranan na is also employed as an article, although homophony does not necessarily identify it with prepositional na. In the Portuguese Creole of the islands of São Thomé and Anobom, according to Álvarez, na, nã and inẽ are employed as in nã ome *os homens* (*the men*). The form inẽ reminds one of Jamaican ina, which, however, is employed only as a preposition.

tense as il est venu *he came or he has come.* Sranan, on the other hand, includes progressive and habitual in its incompletive m e kon *I am coming, I come (habitually)*, distinguished by the prefix from completive mi kon *I came, I have come*; while the English distinctions, as seen in the translations, are twice as numerous and of a different nature. Reference to footnote 9 should convince the reader that disparity between the verbal categories of Lesser Antillean (French) Creole and those of Sranan (English) is much less than between those of either of these Creoles and its 'mother language'.

Such differences seem to me to be fundamental, whatever the ancestry of the morphemes involved; and it appears unrealistic to call them "but gradual modifications in meaning and function" (Weinreich, loc. cit. in fn. 5, p. 377) of the French or English forms of which the Creole morphemes are taken to be cognates. Whether there really are what Weinreich calls "overlapping criteria" (with basic grammar and basic vocabulary pointing in different directions) perhaps only an Africanist can tell us (after he has studied two or more of the Creoles); but I hope to have shown that there are at least grounds for such a suspicion; and should it be confirmed, as Weinreich himself admits: "The study of the Creoles would then indeed force an adjustment of linguistic theory."

DOMINICA, BRITISH WEST INDIES

THE CONTENT AND STYLE OF AN ORAL LITERATURE: CLACKAMAS CHINOOK MYTHS AND TALES. By Melville Jacobs. Chicago: University of Chicago Press, 1958, viii, 285 pp. (Also issued as Viking Fund Publications in Anthropology, No. 26).

WILLIAM A. LESSA

In 1929 and 1930 Professor Jacobs collected the texts of sixty-four myths and tales from a single informant, a woman who was one of the last two or three surviving speakers of the Clackamas dialect of Chinook; now he has attempted to analyze the content and style of these stories, belonging to a presently extinct Indian culture of Oregon. Since neither he nor anyone else had gathered much information on the people in question, his exegesis is perforce hampered by lack of corroborative information, particularly since the author at the time of his note taking lacked the sophistication in folklore which he now manifests so felicitously. The lacunae in the ethnography of the Clackamas has in a sense proven to be a boon, for it has forced him into fascinating speculations and reconstructions. Had he had more material at his disposal, his study would have lost much opportunity for ingeniousness.

Of the three parts of the book the first is a demonstrational analysis of eight sample stories. Each is first given as translated from the text, and then interpreted for the reader. As anyone experienced in unadorned native folktales will attest, such narratives are for the most part terse and remarkably unexpressive of the emotional, characterological, and motivational elements so vital to Western literature. The commentary provided by Professor Jacobs skilfully transforms prosaic recitations into vibrant dramas. His paraphrasing and interpretation of the actors and events is brilliant, yet plausible and restrained, even when turning to psychoanalytic suasions. One reads these first hundred pages with the sort of contentment a schoolboy gains from listening to a perceptive teacher expound a classic but difficult poem or play. Part II begins with a brief consideration of the literature as a whole and then treats in detail with features of content (IIA) and style (IIB). Perhaps the portion on content is the less rewarding, but only by contrast. The author must rely on the stories themselves, with little help from ethnographic sources, and deals as best he can with

social relationships, the personalities of the actors (who for the most part bear animal names but are not theriomorphic), the nature of Clackamas humor, ethics, and world view. When he turns to features of style he is on surer ground because his interpretations can come essentially from the oral literature itself, even though it is not as plentiful as he would like. Here are discussed such matters as variability in play structures, stylized devices and motifs, tersity of delineation, and speed of action. The word "play," as well as the word "actors" used above, is used advisedly, for the author feels that a characteristic of native folktales in general and those of the Clackamas in particular is that they are less like stories and more like what we would call "skits," "comedies," "tragedies," and so on. He feels that Clackamas narrators performed essentially in the manner of one of our own actors giving a solo reading of a play. It is of interest that Professor Jacobs has little to say about linguistic factors, for however much they may have meant in actual narration they are negligible in the text data.

There can be no doubt that this work achieves its intention. It foregoes a comparative-historical orientation and chooses instead to stress content. It demonstrates that as a body of literature Clackamas narratives cannot be appreciated from straightforward presentations but only through interpretation and annotation. By so doing it opens up a vista which anthropological folklorists may wish to emulate. Should they do so it would make available to literary-minded readers and critics a rich body of oral literature otherwise lying fallow. Additionally, this volume serves as a reminder for the collector of tales to go beyond simple recording, noting audience reactions where possible and ethnographic contexts when still available.

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SPANISH-NAHUATL-HUICHOL MONETARY TERMS

JOSEPH E. GRIMES

Borrowing of a cultural subsystem complete with linguistic labels is neatly illustrated in Huichol.[1] Of perhaps greater interest still is the fact that the total subsystem is traceable to Spanish, but the linguistic labels are Náhuatl, indicating perhaps that the Náhuatl played a mediating role in the transmission of the subsystem (coined money) from colonial Spanish to Huichol.

Fractions of a peso[2] are designated in three different ways in Huichol: (1) by direct loans from the Spanish counting system, (2) by counting and addition of current Mexican coins in Huichol, and (3) by an octave system. It is the last way of designating monetary amounts which came into Huichol through Náhuatl. The present paper describes both the second and the third systems; the first system is Spanish and is used by the more acculturated men, who find themselves on occasion obliged to translate from it to one of the other systems for clarity's sake.

The system in which Mexican coins are counted and added is the one used habitually by women, and to a lesser extent by men. This system uses roots denoting *a five centavo piece*, H(uichol) cínku S(panish) cinco; *a ten centavo piece*, H ríyéeci, S diez; and *a twenty centavo piece*, H wéinti, S veinte. Twenty-five and fifty centavo pieces, though in use, are rare, and their value is explained either in terms of sums of the other three coins or in terms of the octave

[1] Huichol is a Uto-Aztecan language spoken in the states of Nayarit and Jalisco, Mexico. The phonemic notation used is that explained in my Huichol Tone and Intonation, IJAL 25.221–32 (1959), except that here I have replaced /+/ by space at morphologically significant word boundaries.

[2] The peso is the basic unit of contemporary Mexican currency. At present it is worth eight cents U. S. currency.

system. Numerals zei *one*,[3] huuta *two*, haika *three*, or nauka *four* precede the names of the coins; specificative -yaari is suffixed to the names of the coins, functioning to mark the things counted as of a specific type already identified in the discourse.[4] Counted coins are summed by means of heimána *on the top of*, beginning with the coin of greater value: huuta wéintí + yaari heimana ríyéeci heimana cínku *two twenties on top of a ten on top of a five, fifty-five centavos.*

The octave system is used only infrequently by women and appears to be falling into partial disuse among men, many of whom use all three systems interchangeably. Forms recorded for the octave system are: zei tumíiní + yaari *one bit* ($.125),[5] zei tumíiní waméeriya *one and a half bits*, ʔuume tumíini *two bits*, yéi tumíini *three bits*, naawi tumíini *four bits*, qáacéi túmi *six bits*, zei ʔinʌ́ari pána hume tumíini *one peso two bits*, zei ʔinʌ́ari páná naawi tumíini and zei wánáawi *one peso four bits*, huuta ʔinʌ́ari wánáawi and huuta wánáawi *two pesos four bits*, huuta ʔinʌ́ari páná qáacéi túmi *two pesos six bits*, plus analogous formations heard but not recorded.

Mixtures of the two systems are sometimes heard. páná is sometimes replaced by heimána, and expressions of both systems may be combined to denote intermediate values as in qáacéi túmi heimana cínku *six bits plus five centavos, eighty centavos* (also countable as nauka wéintí + yaari *four twenties*).

naawi tumíini *four bits* (*fifty centavos*) is sometimes used by older speakers to refer to five, fifty, or five hundred pesos in addition to its regular signification. It is also used on rare occasions of fifty things. naawi tumíini *four bits* appears in abbreviated form in the contractions zei wánáawi, huuta wánáawi *one peso four bits, two pesos four bits.* wa- appears to be restricted in occurrence to these abbreviated forms and to phrases containing méeriya *half a bit.* qáacéi túmi *six bits* is not used as frequently by younger speakers as are the forms for *two bits* and *four bits.* A man was once heard explaining to his wife that qáacéi túmi *six bits* was naawi tumíini *four bits* plus ʔuume tumíini *two bits.* zei tumíiní + yaari *one bit*, zei tumíiní waméeriya *one and a half bits*, yéi tumíini *three bits*, are forms remembered but not used by older speakers; no corresponding currency is in circulation any longer. méeriya *half* is from S media, and also occurs in expressions such as méeriya mʌtáa + záʌye *half yellow, yellowish.* tumíini, used in the octave counting system for *one bit*, is used elsewhere in the sense of *money in general.*

Some morphs occur in no other collocations in the language except the octave monetary system. These morphs are ʔuume ~ hume *two*, yéi *three*, naawi *four*,[6] qáacéi *six*, páná *plus*, wa- *and*, and túmi *bit.*

[3] zei *one* is a phrase-initial alternant of the counting form zewíi *one*. In the coin-counting system zei *one* is often omitted when a single coin is named by itself, or when a single coin appears in non-initial position in an additive series. Other numerals in the same structural series as the ones named but which do not occur in counting coins are ʔauzʌ́wi *five*, ʔaataa+zewíi *six*, ʔaataa+húuta *seven*, ʔaataa+háika *eight*, ʔaataa+náuka *nine*, tamámata *ten*, zei téwí+yaari *twenty*, huuta téwí+yaari *forty*, etc. These are summed by means of heimána as in counting coins.

[4] The regular frame for counting inaminate objects is Numeral + Name of Object + -yaari. With ʔinʌ́ari *unit of measure, peso*, the -yaari is frequently omitted, especially in conjunction with the octave system.

[5] The bit, S real (piece-of-eight) was the basic fraction of a peso in use until the Mexican Revolution of 1910–1917, when it was replaced by the decimal coinage used today. Pre-revolutionary coinage is reported to be still preferred in isolated parts of the Huichol area.

[6] ʔuume *two* and naawi *four* bear a resemblance to ʔuumée *bone* and naawíi *skin, hide*. However, there is no evidence to indicate that speakers of Huichol equate the terms. zei *one* is genetically cognate to Michoacán Náhuatl (see fn. 7) sei *one*. In monetary contexts it is therefore impossible to tell whether zei was borrowed with other items or was used as part of the native lexicon; neither view disturbs the implications of evidence of borrowing in the monetary system as a whole.

Except for túmi these forms match quite closely the counting forms of M(ichoacán) N(áhuatl):[7] H ʔuume ~ hume, MN ume *two*; H yéi, MN yei *three*; H naawi, MN nawi *four*; H qáacéi, MN čikʷasen *six*; H páná, MN pani *on top of*; H wa-, MN wan *and*. Since the occurrence of all these forms is limited strictly to the octave system of monetary designation, it seems plausible to suggest that the forms are borrowings from a dialect of Nahuatl not too different from contemporary Michoacán Náhuatl, and that the forms were borrowed within the matrix of the monetary system alone.

It is suggested furthermore that the terms which correspond to Náhuatl were borrowed in phrases rather than as individual morphemes. Witness the variant forms for *two*, ʔuume and hume, in ʔuume tumíini *two bits* and in zei ʔináari pána hume tumíini *one peso two bits*. All Huichol syllables begin with a consonant, and vowel-initial Spanish forms are taken into Huichol with either /ʔ/ or /h/ initially, as in H ʔaa + táréezi, S Andrés *Andrew*; H haanfira, S anillo *ring*. Phrase initially the form for two was borrowed with a glottal catch, but phrase medially following páná (or rather following its Náhuatl original) no glottal constriction was perceptible to Huichol speakers and so the form was interpreted as containing the more lenis /h/.

In the same way the forms tumíini ~ túmi *bit* in naawi tumíini *four bits* and qáacéi túmi *six bits* indicate that S tomín *bit* was borrowed from Náhuatl in a phrase rather than directly from Spanish as a separate item. However, it could also be argued that since the position of stress in H tumíini (on a high tone followed by a low) corresponds to the position of stress in S tomín, and the position of stress in H túmi (by the same rule) corresponds to the predominant Náhuatl pattern of penultimate word stress,[8] therefore H tumíini might have been borrowed separately direct from Spanish, replacing an equivalent form túmi borrowed earlier in phrases from Náhuatl.

Groups of Náhuatl speakers are known to have lived in a belt extending up and down the eastern edge of the Huichol tribal area.[9] It seems a reasonable interpretation of the data, then, to suggest that the Huichol first came to know Spanish money through the intermediate agency of one or more of the Náhuatl groups which were located between them and the colonial Spanish centers in the Guadalajara-Zacatecas region.

It must be further suggested that the Náhuatl speakers themselves borrowed the Spanish monetary system, which they referred to by using their own numerals and by borrowing Spanish tomín to represent the basic unit of the system. It is interesting to note that contemporary Huichol follows a similar pattern in linking its numerals to Spanish coin names.

The word tomín is listed by the Diccionario de la Lengua Española as "del ár[abe] timín, octava parte."[10] If this etymology is

[7] Michoacán Náhuatl is the geographically most proximate contemporary dialect of Náhuatl for which accurate data are available. A Náhuatl-speaking community has been reported to exist in the village of San Lucas, southern Durango, but no word lists from it are available. Michoacán Náhuatl data were collected in Pómaro, Michoacán, Mexico, and communicated to me by William G. Nyman, Jr. of the Summer Institute of Linguistics.

[8] Harold Key y Mary Ritchie de Key, Vocabulario Mejicano de la Sierra de Zacapoaxtla, Puebla. México, D.F.: Instituto Lingüístico de Verano, 1953, p. v: "El acento prosódico primario ocurre en la penúltima sílaba de toda palabra polisílaba."

[9] Alberto Santoscoy, in a note in Nicolás León, Familias Lingüísticas de México. Mexico: Museo Nacional, 1902, pp. 67–73.

[10] Not, as Benjamin Lee Whorf supposed, from Náhuatl, borrowed into Spanish, and diffused throughout Mexico by the Spaniards. Whorf, Loan-Words in Ancient Mexico, Middle American Research Institute, Tulane University of Louisiana, Philological and Documentary Studies, vol. 1 no. 1 (1943), also published in Studies in Linguistics 5.49–64 (1947). The Arabic provenience of tomín was first called to my attention by Harold

correct, the chain of borrowing goes back one step further to the Moors.

One other instance of a mixed Náhuatl-Spanish borrowing in Huichol deserves mention: H pampa ríyúuci, MN pampa dios *thank you*, which in turn comes from MN pampa *for*, S Dios *God*. The history of the borrowing of H pampa ríyúuci *thank you* would thus seem to be parallel to that of H ʔuume tumíini *two bits*, with the exception of the ultimate Arabic provenience of tumíini.

SUMMER INSTITUTE OF LINGUISTICS

DICCIONARIO GUARAO-ESPAÑOL, ESPAÑOL-GUARAO. Basilio Ma. de Barral. Sociedad de Ciencias Naturales La Salle, Monografías No. 3, Caracas, 1957, Pp. 276.

HENRY OSBORN

The dialect of Guarao (Warao) presented in this dictionary is primarily that spoken in Caño Araguaimujo in the Orinoco Delta of Venezuela, though forms are sometimes cited for other dialects. The material shows only a few differences (mainly in vocabulary) from the Caño Bagre (CB) dialect which I have investigated.

The prologue by Johannes Wilbert, anthropologist of La Fundación La Salle de Ciencias Naturales de Caracas, contains a valuable list of toponyms of probable Warao origin from Venezuela and other South American and circum-Carribean countries. The suggested divisions of Warao dialects also presented in the prologue are more geographical than linguistic; the differences cited are few and in most cases not illustrated.

According to the Presentación the Diccionario contains 5,140 "words." It would have been better to have said "entries" since the total number has been enlarged in at least two ways. First, after most verb stems (but not all) the present, past, and second person singular imperative suffixes (or suffix clusters) are given in parentheses, but not defined. These are then listed in their alphabetical order as words. Other non-Latino-Hispano combinations are also listed separately as words: e.g. abamoana *not yet put*, abane *gerund of* aba- *to put*, abaubu- *plural . . . of* aba-. There are 29 entries for dibu *word* and its corresponding verb dibu- *to speak* in its various combinations, extensions, and derivations. Second, many noun stems are listed in both possessed and non-possessed forms: arai *one's back* and later dai *back*.

The vocabulary itself is excellent, a thorough collection by the author over a period of his 26 years experience as a Capuchin missionary. The glosses are well documented from native texts and songs, though occasionally some extended meanings are given from translation texts. In checking my own file against the entire dictionary I found my file lacking many of the entries, most of them recognizable by CB informants. Though no count was made it is estimated that 90 per cent or more were recognizable.

The following represent differences encountered between Diccionario entries (given first) and CB. To facilitate comparison I have (here and elsewhere) transliterated Diccionario forms to the orthography used for CB. Exceptions are specifically noted.

Vocalic alternation. i for u: wajukatu, wajikatu *last*. o for u: amubaja, amobaja *bait*; runamaka-, ronamaka- *to bend over*. e for a: ataisi, ateisi *short cut*. e for o: anejoko, anejeko *early morning*. o for e: esejo-, esojo- *to pour out*. e for i: batibati-, batebate- *to splash in water*.

Vocalic addition: Addition of of i: wajabara, wajiabara *beginning*, reri-, reiri- *to counsel*. Addition of u: ajabu-ajaubu- *to sniff (like a dog)*.

Consonantal alternation: j for y: raya, raja (or raeja) *kind of vine*.

Consonantal addition: addition of j fol-

Key. Diccionario de la Lengua Española, décimoséptima edición. Madrid: Real Academia Española, 1947.

lowing i: riabera, rijabera *sweet*; riawara-, rijawara- *to be born*; wia-, wija- *to bail out*.

Partial or complete suppletion: raubuari, buariwari *sword*; rauka, natorobu *walking stick*; asau, ekumoni *suffering, unhappiness*; ajioko, bisikamo *flea*.

The following representative words were not recognized by CB informants and no suppletive word was suggested by them for the gloss given in the Diccionario: ajakajuba *kind of snake*; ajua *drawing, figure*; akora *kind of frog*; bakayamoni *stupid*; raura *dense woods*.

I have about 200 forms collected for CB but not given in the Diccionario. The following are representative: barawabo *jellyfish*, ebujote- *to pour back and forth*; esemoni- *to peep thru a hole*, irajiro *young, immature*, jekojeko *unconscious*, joru- *to become waterlogged*, kaunasa *waterspout*, komata- *to splice*, õjo- *to cough*, yã *walking*.

The Español-Guarao portion of the Diccionario, a shorter reference list of about 2500 entries, is found on pp. 217–276.

The Diccionario is not meant to be a treatise on phonemics and morphology but the author's comments cannot be overlooked. The list of phonemes presented includes: i, e, a, o, u, p, t, k, b, d, g, r, m, n, s, y, and j. The order is mine. One word is cited for ch, chigui (CB siji) *kind of bird*. /j/ indicates a fricative sound similar to Spanish /j/.

There is some confusion regarding the phonemization of [b], perhaps partly due to the author's transcription of /w/ as /gu/. awere [abere] is cited both as agüere and abere *near*. The phonemization of [b] with /w/ may be illustrated as follows: /waku/ [waku] terrapin, joniwaku [jonibaku] *turtle (water terrapin)*; /were/ [were] *grind it!* /bere/ [bere] *clean it off!* /mawere/ [mabere] *near me*, /mabere/ [mabere] *clean me off!*

The Diccionario's /d/ and /r/ may be combined in /r/ with the [d] word initial and [r] word medial: /rabo/ [dabo] *knife*, /marabo/ [marabo] *my knife*; /reko/ [deko] *both*, /mojoreko/ [mõjõreko] *ten, both hands*.

marks nasalization. The Diccionario states (p. 180) that /d/ and /r/ are interchangeable word medially. Perhaps this is the word medial free variation of the flap [r] with a more lateral allophone [l‘] noted in some CB speakers: /jere/ [jere] or [jel‘e] *snail*; /joro/ [joro] or [jol‘o] *skin, shell*.

It is stated (p. 179) that /p/ does not exist initially but that it varies with /b/ within the word with some speakers. In CB [p] varies with [b] both initially and medially: /bisikamo/ [bisikamo] or [pisikamo] *flea*; /rijabera/ [dijabera] or [dijapera] *sweet*.

In the rare words with nasalized vowels not attributable to the effect of a nasal consonant which have been recorded in CB no nasalization is indicated in the Diccionario for those words it lists. Again I give Diccionario listings first, then CB: jioi, jĩõji *horn (on a cow)*; io, ĩo *kind of turtle*; jia, jĩja *kind of water crane*. This last contrasts in CB with jija *your hammock*. toibe, tõibe *kind of bird*. This also contrasts in CB with joibi *lagoon*. Note also the following contrasts from CB: rai *one's back*, rãi *fallen down*; ya *sun*, yã *walking*; etere *bell*, terẽ *it broke*. Also occurring among others are: kãibo *beetle*, ũi *kind of bird*, kũakũa *kind of frog*.

The Diccionario has two entries: sain *severe pain* (p. 184) and sodón *take out* (p. 190) that must indicate nasalization since the word pattern does not allow final consonants. sãi in CB is *murmur, sound of people talking* and sã is *severe pain*. soro (not nasalized) is *thrashing of fish in water* and esoro- *to take out*.

In summary, I would reduce the consonant phonemes to: t, k, b, r, m, n, s, w, y, and j. To the vowel phonemes listed: i, e, a, o, and u, I would add their rarer nasalized counterparts: ĩ, ẽ, ã, õ, and ũ.

The author's morphological notes are not much better than those on phonemics. The following instances are representative.

(1) Morpheme alternates are presented as two morphemes. For example e- *transi-*

tivizer, causative (p. 71) and i- *causative* (p. 92) are not two morphemes but one: i- occurs before a following -a, and e- before other vowels whether there is an intervening consonant or not. namina- *to learn*, inamina- *to teach*; najoro- *to eat*, inajoro- *to cause to eat, to feed*; mi- *to see*, emi- *to show*; roku- *to burn*, eroku- *to light a fire*; jura- *to be wet*, ejura- *to wet something*; reta- *to be afraid*, ereta- *to frighten*.[1]

A similar alternation is found in certain derivative verb prefixes: ni- ~ ne- *horizontal*: nijaba- *to take aim*, nejeru- *to float away*; si- ~ se- *into, up to*: sikarin- *to fold*, sekuju- *to thread*.

(2) Several morphemes are described as simple "paragoge" in the Diccionario. P. 207 calles -ya a "particle added as a paragoge to many nouns . . . adjectives . . . for euphony." In CB -ya can be analyzed as a *distributive locative*: -a follows e and i, -ya follows other vowels: janoko *house*, janokoya *house to house*; saba *toward*, sabaya *over in (that) direction*; tamatuka *here*, tamatukaya *all around here*; eku *in*, ekuya or ekia *all around inside, throughout*.

-si (p. 186) is said to denote "belonging," to indicate a person previously referred to, and a "desinence of the present participle." -si can be analyzed as a goal marker for a listable class of nouns and noun substitutes, always following a syllable with stressed a. (Stress in the following examples is penultimate.) tira *woman*, tirasi miae *he saw the woman*; tamaja *this*, tamajasi inamunae *he planted this one*. -si also occurs following the adjectival construction: [(Stem + -ra *adjectivizer*) + -ja *auxilary*] + -si: koera *rotten*, jomakaba koerajasi webotonae *fish rotten he-threw-out, he threw out the rotten fish*; yakera *good*, joboto yakerajasi eku nakae *soil good into it-fell, it fell into good soil.*

-ma, an alternate of -si, occurs with another listable class of nouns and noun substitutes and may follow any vowel. The Diccionario calls -ma (p. 142) "euphonious suffix of pure adornment," -ma may be illustrated as goal marker as follows: rani *mother*, aranima isia naruae *his-mother with he-went, he went with his mother*, raisa *another*, raisama inatabae *another-one he-sent, he sent another one.*

(3) For many verbs two stems are listed, one "regular" and the other "irregular," (p. 26) aje- and aji- *to hit*; (p. 67) roka- and (p. 68) roku- *to burn*. Here there is a vocalic alternation which functions as a singular-plural indicator in certain verb constructions.[2]

With all its faults (from the point of view of modern structural linguistics) the Diccionario is still a valuable contribution to our scanty knowledge of the Warao dialects. The vocabulary given is a most useful one, and though the implied phonemics and morphology require a good deal of correction, some of the data needed for such correction are made available.

TUCUPITA, VENEZUELA

[1] The Diccionario cites imi- *to cause to see* and iteribu- *to cause to study*. I feel these transcriptions are due to the range of the high front vowel from close toward open tending to approximate the higher allophone of Spanish mid front e. In CB these are emi- and eteribu- respectively. A unique example of i- *causative* before following -e occurs in CB in ejoba- *to go out*, iejoba- *to release*.

[2] See a fuller treatment of this alternation in my Singular-plural in Warao Verbs, Antropología 6.1–6 (Caracas, 1959).

A NOTE ON THE SOUTHWESTERN WORDS FOR CAT

WILLIAM BRIGHT

Herbert J. Landar has called attention[1] to the difficulty in deriving Southwestern words for *cat* from Spanish: Navaho ʼmósí, Hopi mó·sa, Zuni mu:sa, Keresan mú·s, Tewa mú·sa^{h}, Taos m$_{\cup}$ụsi-ʔʼina all have back rounded vowels in the first syllable, as compared with the front unrounded vowel of Spanish miso -a, micho -a. According to Landar, Hopi mó·sa suggests "to Spanish

[1] The Diffusion of Some Southwestern Words for Cat, IJAL 25.273–4 (1959).

ears an absurd mósa *moose*." But it suggests something else too: phonetic [mósa], in American Spanish, also corresponds to moza *girl, maidservant*. This suggestion leads to an etymology for the Southwestern words. Spanish mozo *boy, manservant*, feminine moza, are recorded in the meaning of *cat* by the Dictionaries of the Royal Spanish Academy since 1726. In addition, the Spanish terms gato -a and morrongo -a, both with the basic meaning *cat*, are used in Mexico with the meaning of *servant*.[2] Presumably the double meaning of mozo -a facilitated the extension of meaning for gato -a and morrongo -a. In any case, the occurrence of Spanish moza *cat* in the Southwest seems the most likely explanation for Hopi mó·sa and its congeners.

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LANGUAGE MAPS AND OTHER MATTERS: A REJOINDER

GEORGE L. TRAGER

Driver's review of North American Indian languages: classification and maps in IJAL 25.201-2 (1959) calls for some comments.

What is a review supposed to do? First, every review—it will be agreed, I think—should name, correctly and in detail, the work being reviewed. Then it should describe the contents, and indicate the purpose of the book. Next it could tell the reader how well or badly the contents are presented, and how near the work comes to achieving its purpose. Then—and only then—should the reviewer enter into theoretical discussions: if the work is a compilation, and one intended for practical use, especially by students, there is one kind of theory applicable to it; if it is a monograph presenting the results of new and original research, there is another kind of theory to be concerned with; and so on.

Driver's review DOES NOT list the work under discussion correctly. Studies in Linguistics remains, as it has always been, entitled simply that; it is an independent journal, published AT the Department of Anthropology of the University of Buffalo, but not BY the University; it is not therefore to be listed as "University of Buffalo Studies. . . ."

Driver's review DOES NOT state the contents of the work, which can be summarized very briefly: an Introduction of 3¼ pages (the pages are 6x9 inches); a summary Classification in 2¼ pages; six Maps (one guide to the sections of the original larger base map, and the five sections) with alphabetical and other lists of the languages on each map (the non-alphabetical lists are coded by classification code numbers, or are of numbered locations on the maps for languages occupying areas too small for names to be written in them), occupying 20¼ pages; an alphabetical Index of the languages on four pages; and a one-page Bibliography.

The purpose of this, NOWHERE ALLUDED TO by Driver, is to furnish "an easily handled map or set of maps . . . with sufficient accompanying text to provide teachers and students of anthropology and linguistics with adequate and readily available data on the names, locations, and linguistic classification of the recognized native tribal groups and their languages" (p. 3). The authors state that they are not cartographers, and apologize for deficiencies in the base map and its adaptation. The classification used is described historically, and new ideas on this since 1945 are expressly mentioned as not having been taken into account. A code-number notation, slightly adapted from a work that is also dated 1945–6, is presented as something of a novelty, but is labelled "a poor substitute for color or even cross-hatching" visually, though it does show subordination in the classification. Reference is made to my review (1945) of the Voegelin map, implying an awareness of difficulties in respect to time-perspective.

[2] Augusto Malaret, Diccionario de americanismos, tercera edición (Buenos Aires, 1946), pp. 434, 573.

Driver's review DOES say he is to deal with the maps, while Voegelin handles the classification, in Language. Yet Driver DOES discuss classification, all through the first two paragraphs of his review. (Voegelin's review, it may be said in passing, also never mentions the purpose or content of this work, and discusses the classification as if it were being presented as a new contribution to theory and fact.)

Driver DOES criticize the maps, calling them "amateurish" and "not entirely legible." Any map not made by a cartographer is amateurish. The legibility at times leaves something to be desired; it varies from copy to copy, and is largely the result of the method of reproduction and printing. The copy supplied seemed legible enough, but the results were disappointing. We regret this, but engraving and letter-press would have raised the price far beyond one dollar—a detail not mentioned by Driver (or Voegelin).

Driver DOES NOT tell the reader whether, despite amateurish and partly illegible maps, the work achieves any part of its stated purpose. He DOES NOT mention the long and very clearly legible lists, cross-referenced in various ways, and the index.

Driver DOES NOT discuss the need, desirability, or theoretical orientation of a compilation of this kind.

Driver DOES NOT mention the several real errors, nor the fact that a list of corrections (probably not entirely complete) is supplied with each copy.

So, again, what is a review supposed to do?

UNIVERSITY OF BUFFALO

SUMMER SCHOOL OF LINGUISTICS

The University of Alberta in cooperation with the Canadian Linguistic Association will conduct a third Summer School of Linguistics from July 4th to August 10th, 1960. Courses will be given in General Linguistics, Phonetics and Phonemics, Morphology and Syntax, English Phonetics, French Phonetics, Field Methods in Linguistics, Language and Culture, History of the English Language, and Modern English Grammar.

Prospective Canadian participants are eligible to apply for financial assistance to the Canada Council, 140 Wellington Street, Ottawa. United States citizens and other non-Canadians should direct their inquiries regarding financial assistance to the American Council of Learned Societies, 345 East 46th Street, New York 17, N. Y. In addition, a limited number of small grants, some specially earmarked for particular courses, will be made available by the Canadian Linguistic Association. Inquiries should be directed to the Association's Secretary-Treasurer, Dr. W. S. Avis, Royal Military College, Kingston, Ontario. Because of early final dates for applications, students are advised to request additional information and forms as soon as possible.

A bulletin giving full details concerning the 1960 Summer School of Linguistics will be available soon. In the meantime, all inquiries should be directed to Dr. Ernest Reinhold, Director, Summer School of Linguistics, University of Alberta, Edmonton, Alberta, Canada.

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Reprints of the six parts of Gladys Reichard's "A Comparison of Five Salish Languages" (IJAL 24 No. 4, 25 No. 1-4 and 26 No. 1) have been bound and are available for $1.00. Orders may be sent to the Business Manager of IJAL.

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CONTENTS

The Oto-Manguean Hypothesis and Macro Mixtecan ..... *Morris Swadesh* 79

Natick Consonants in Reference to Proto-Central Algonquian: I .... *Shirley Silver* 112

Tanaina Subgroups ..... *Herbert J. Landar* 121

Seneca Morphology II: Irreducible Verbs and Nouns; the Modal Verb *Wallace L. Chafe* 123

Stem Construction and Affixation of Sierra Nahuat Verbs ..... *Harold Key* 131

NOTES AND REVIEWS

Linguistics ..... *Robert P. Stockwell* 146

On the History of Island-Carib Consonantism ..... *Douglas Taylor* 146

Language Shift or Changing Relationship? ..... *Douglas Taylor* 155

The Content and Style of an Oral Literature: Clackamas Chinook Myths and Tales (Jacobs) ..... *William A. Lessa* 161

Spanish-Nahuatl-Huichol Monetary Terms ..... *Joseph E. Grimes* 162

Diccionario Guarao-Español, Español-Guarao (de Barral) ..... *Henry Osborn* 165

A Note on the Southwestern Words for Cat ..... *William Bright* 167

Language Maps and Other Matters: A Rejoinder ..... *George L. Trager* 168

Summer School of Linguistics 169

Gladys Reichard Reprints 169

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79
112
121

123
131

146
146
155

161
162
165
167
168
169
169